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COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

JULY 1946



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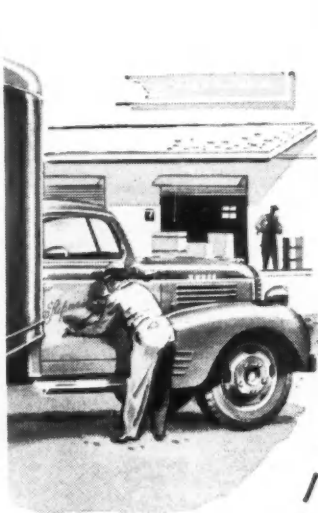
precision-built engines, dual primary brakes and extra-rugged truck construction in every part are just a few of the many additional reasons why it pays to standardize on Reo. This modern, money-saving equipment is now available through a nation-wide organization of dealers, distributors and factory-operated branches. Ask for detailed information and prices. REO MOTORS, INC., Lansing 20, Michigan.

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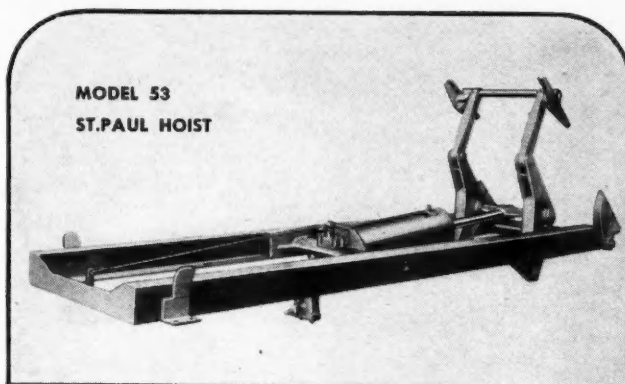
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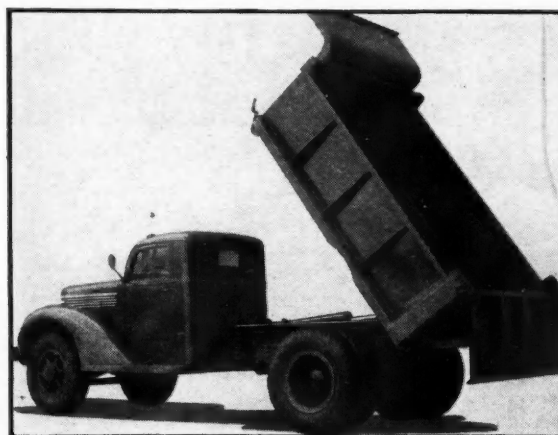
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"MISTLETOE ALWAYS GOES THROUGH!"

● Nothing is staler than yesterday's newspaper. So 14 years ago Mistletoe Express Service, Oklahoma City, was founded to rush the *Daily Oklahoman* and *Times* to readers throughout the state. Its slogan then, as now, was "Mistletoe Always Goes Through!"

Now commercial tonnage greatly exceeds newspaper volume. Four hundred and nine Oklahoma cities and towns are served. Pick-ups and deliveries of air freight are made for and from 32 major cities in the United States and Mexico.

And Mistletoe is a safety champion. Three times running it has been the nation's safest major truck fleet. In 1944-45 the fleet covered 3,456,000 miles.

The accident average was .14 per 100,000 miles. The national average was 2.46.

Here's how Mistletoe wins safety championships: Drivers are carefully selected and trained. Regular safety meetings are held. Bonuses are paid drivers for accident-free years. Each truck is carefully checked before each run. The check includes engine timing, ignition and lubrication, brakes, headlights, tires, and emergency lights.

63 Internationals are in the Mistletoe fleet. These Internationals play their part in Mistletoe's service and safety—one more example that explains why more heavy-duty Internationals have been purchased for commercial use in the last 15 years than any other make.

Yes, "Mistletoe Always Goes Through!"... Mistletoe and Internationals!

Motor Truck Division
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois



Tune in "Harvest of Stars" Every Sunday, 2 p.m. Eastern Daylight Time. NBC Network



INTERNATIONAL Trucks



by GEORGE T. HOOK, Editor

Some More Thoughts on 1948 as the Truck Industry's Golden Jubilee Year . . . Etc.

RECENT efforts to celebrate the Golden Jubilee of the Automotive Industry on a national scale have not been successful. There are several reasons why the national celebration can be set down as a failure:

1. It was an afterthought.
2. As an afterthought it did not allow for proper planning.
3. The grounds for a national celebration were dubious.
4. Business conditions are such as to put a damper on any celebration of a business character.

* * *

The original idea was to celebrate the Golden Jubilee as a strictly Detroit affair. The basis for the festivities was a trifle tenuous, as they say in diplomatic circles, but it was good enough for Detroiters. It seems that back in 1896 Charles King and Henry Ford appeared publicly on the streets of Detroit with their automobiles. That was hardly the beginning of the automotive industry in Detroit, but as an excuse for a Jubilee it was probably the best that could be devised.

* * *

Then someone had the afterthought. The automotive industry had just experienced its worst siege of strikes. Why not, it was reasoned, counteract the public ill-will by making the Golden Jubilee celebration a national affair? There was nothing to be lost and something might be gained, so the motion carried. A few wads of publicity advocating the national Jubilee were sent out and that was the extent of the planning. Detroit had its celebration—and it was a good one, but the national celebration is as “dead” as a trailing axle.

* * *

However, as we were saying in this space last month: “Shouldn’t the

truck industry celebrate its Golden Jubilee in 1948?” The year 1898, according to automotive archives, marked the introduction of the first commercial gasoline delivery wagon and the first commercial electric delivery wagon in this country. As a reason for a celebration this is as valid as they come.

* * *

Having established a valid date, the next question is: “What can the truck industry gain by a celebration in 1948 or any other time?” The sole purpose of a “valid” celebration would be to impress the public with the importance of the motor truck industry, and of the motor truck as an instrument of service affecting the daily lives of all of us. By means of a favorable impression the industry would hope to gain nothing more than it deserves: public good-will which would lead to less restrictive legislation and foster the greater growth of truck transportation and corollary improvements which should reduce truck operating costs.

* * *

The celebration should, in effect, be a national campaign of educating the public. The year 1948 should find the public more receptive to such an effort because all the experts say the postwar business boom will really be on at that time.

* * *

If the various elements of the truck industry are to take advantage of a 1948 Golden Jubilee celebration the decision should be made as quickly as possible. Plans must be well laid and leave nothing to chance. First of all there should be a meeting representative of the motor truck group of the Automobile Manufacturers’ Association, the National Highway Users’ Confer-

ence, the American Trucking Association, Inc., the National Council of Private Motor Truck Owners, Inc., the Truck-Trailer Manufacturers Association, Inc. This group should decide if the idea has any merit and if it decides that it has, objectives should be formulated and a plan of action recommended to all interested associations. Once the plan of action is approved by the interested groups the job of organizing the educational effort can be started.

Analysis of AASHO Code

ON page 38 of this issue there is an article analyzing the effect of the proposed AASHO size and weight standards on the design of single vehicles and combinations. This is a very important article and is recommended reading for all fleet operators. Diagrammatic sketches show how involved and complicated is the procedure of determining permissible loads on groups of axles when figuring gross vehicle and gross combination weights.

* * *

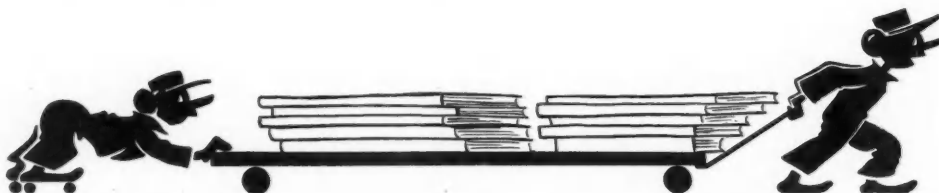
Of particular interest are the sketches showing that 3 tons more net payload is permitted on a combination of two four-wheel vehicles than on a combination of two six-wheel vehicles.

* * *

Before the article was prepared for publication it was submitted to the scrutiny of H. S. Fairbank, deputy commissioner of the Public Roads Administration and chairman of the Highway Transport Committee of the American Association of State Highway Officials. Mr. Fairbank considered it an able analysis and made some minor corrections which were acceptable to the author.

(TURN TO PAGE 174, PLEASE)

CCJ READER DIGEST



To give busy readers basic facts quickly and simply, CCJ editors have condensed, on

Effect of AASHO Code on Truck Design

by FRED B. LAUTZENHISER, Consulting Engineer, I.H.C.

THE basis for determining axle and gross load allowances under the AASHO code definitely places a premium on long wheelbase vehicles and on long axle-spaced combinations. For the common carrier, this is not too objectionable. However, contract haulers and especially private operators may be hard pressed to justify unnecessarily long equipment for reasons other than gross load.

In working out maximum gross vehicle or combination weight by the AASHO bridge table, the very first step is to prepare a diagrammatic sketch of the types of vehicles under consideration, with the various pertinent dimensions accurately set in.

Second, the AASHO load allowances should be set in under every one of the various axle groups.

Third, determine the greatest common divisor of the various AASHO Table values for the variously spaced axle groups.

Fourth, determine truck or tractor's front axle gross.

The final step is to total the indicated axle loads into the maximum gross vehicle or gross combination weight attainable, being careful to check against the gross indicated in the AASHO Table for spacing between the very first and very last axle under the vehicle of combination being considered.

A study of the diagrams will indicate that when, and if, the AASHO standards become ipso facto by legislation, the heavy six-wheel truck and tractor truck will fade out of the picture, except in States that permit more liberality than AASHO. Why? Because the three axles under a tractor and semi can gross 5000 lb. more than when under a straight truck. Because a two-axle tractor pulling a tandem semi can handle as much, or more, net payload than the same semi with a three-axle tractor. Also because a two-axle truck pulling a two-axle full trailer can handle much more net payload than a three-axle truck pulling a three-axle pull trailer. See page 38.



Operators Give Engineers Ideas



THIS is a symposium of four articles excerpted from four papers presented at the SAE Summer Meeting in French Lick, Ind., June 2-7, 1946.

The first article, entitled, "Body, Engine and Chassis Improvements," was prepared by Willard D. Bixby, Ralph M. Werner and Harvey H. Earl, all of United Parcel Service. Their subject is divided into two parts. In the first, they present suggestions that would aid safety, driver comfort and all-around efficiency. The second part deals with maintenance and the many improve-

ments that could be made to reduce labor and vehicle operating time loss.

J. L. S. Snead, Jr., of Consolidated Freightways is the author of the second article, "Weight Reduction, Better Brakes." He points out that state weight and length restrictions put a high premium on vehicle weight. He points to specific advancements in this direction and suggests that they be generally adopted. He suggests other improvements, also. A strong case is made, for example, for better brake control and better emergency brakes.

"Simplified Inspection and Maintenance," is the third article, which was prepared by H. F. Chaddick, American Transportation Co. He urges standard arrangement of instruments, gear shift patterns, standard size blocks and other items. Principally, however, he points out that a thorough job of PM checks takes 10 or 12 hours. He advocates the use of built-in attachments that would permit the use of instruments which would cut inspection time to a fraction of that now required.

In the last article of this group, "Emphasis on Low-Cost Maintenance," the author, Ted V. Rodgers, president, ATA, states, "If the trucking industry's future is to be as great or even greater than its past, it must be able to reduce costs for maintenance and operation." He points out that the cost of a vehicle out of service may be far more than the cost of the repairs required. See page 62.



Frozen Food Hauls



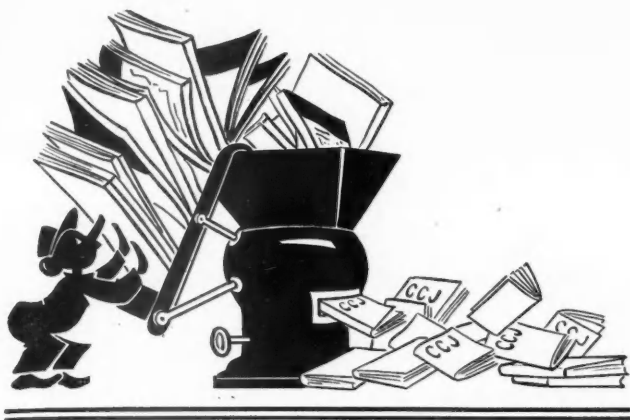
by BART RAWSON, Associate Editor, Commercial Car Journal

A DEVELOPMENT of definite interest to fleetmen engaged in hauling frozen foods is taking place in the frozen foods industry. That development is the definite realization that no matter how good the quality of the original product, or how perfectly it was frozen, tastiness is lost and bacteria content may become dangerous unless the product is maintained at zero deg. F. during storage and transportation.

If shippers insist on zero, truckmen are going to have to deliver it. What's more, the shippers may ask for a guarantee of this temperature, and the only practical way that this can be achieved is through the use of recording thermometers.

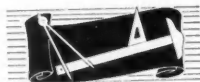
The Frozen Food Institute, Inc., is spearheading a drive for controlled temperature. It is cooperating with at least one manufacturer of temperature control instruments to develop recording devices specifically for truck use.

The National Association of Frozen Food Packers also is on the trail of lower temperatures and recording devices. See page 48.



these pages, this month's leading articles.

Small Shop Plan Features Work Flow



by JOHN GRONER, President, John Groner Petroleum Transport

WE TRIED to design the new building to fit our operation, with facilities for doing all our work efficiently, quickly and economically. We wanted it just large enough to do the job without wasting valuable space.

We have eight tractors which pull 3200-gal to 5400-gal. tank trailers.

I bought a site on which I could erect a building and into which I could drive in at the front, get any service I wanted from mechanical to greasing, and then roll out at the back.

The building is 47 ft. wide, 100 ft. long, and, while space is ample for our operation, there is not a foot wasted. We can put all our equipment inside under cover, if necessary.

The building is of masonry construction with a truss roof. There are no supporting posts and plenty headroom. We utilize much of the space in the rafters for storage. We built an elevator-type tire rack, which normally rests in the ceiling space but which can be lowered to the floor when needed.

Everything in the way of equipment has been bought that will increase efficiency and cut down wasted time. Work benches, for example, are movable. The shop is equipped to do everything that needs doing in motor overhaul and rebuilding, except crankshaft regrinding. See page 52.



10-Yr. Program Makes Tough Runs Tick



by C. H. STOLPMAN, The Cleveland Builders Supply Co.

OUR hauling operations present many difficult maintenance problems. Our loads vary a great deal in weight. Some trips involve only a few sacks of cement, many are average loads of two to four yards of cement mix, while others in emergency cases run excessively heavy for the particular unit doing the job.

While our aim is to keep maintenance costs low, it is even more important to eliminate breakdowns for the obvious reason that cement-mix loads will "set" if delayed long enroute. This involves a total loss of both time and cargo.

We maintain two service trucks for minor road troubles—mostly tires and starters.

We use governors to control speed to 35 m.p.h.

We use oil filters liberally. Chassis lubrication is done weekly.

We clean cement-carrying units every night. They are given a good wash after which they are sprayed with paraffine oil and wiped off.

Our policy is to operate each power unit about 3 years, or around 40,000 miles. Then we take it down and install new rings, new bearings, new wrist pins, new bushings and, if necessary, new valves. Then, after running them for approximately 30,000 miles, or two years, we give the engines a thorough checking over, install new rings and any other parts which may be worn. We alternate these building programs until we have approximately 10 years' use. See page 70.



Why Tires Wear Faster on Curves

THE increase in tire wear occasioned by slippage on a curve probably is a subject few fleetmen have taken much time to think about. This article shows it is a subject worth much consideration—especially for fleets operating on many curved highways. Operators should find the data very effective in giving drivers a dramatic picture of the effects of such tire abuse.

Data are supplied showing that for every 100 ft. the truck moves around a given curve, at 30 m.p.h., it actually slips sideways 6.75 ft. By the time it completes a 90 deg. arc, it has slipped a total of 27 ft. and, in so doing, it has consumed an amount of tread of rubber equal to 8000 ft. (a good mile and a half) of straight traveling, because wear on curves averages 20 times the wear on straight roads. See page 43.



Cleanliness — Conoco's Maintenance



by L. H. HOUCK

WHILE mechanics, garages and repair shops are not synonymous with grease and dirt, neither have many taken prizes for general cleanliness and tidy housekeeping. So it came as something of a shock to walk into the large garage and shop of the Continental Oil Co. Here is a garage floor that you can see yourself in. You can sit down on it in your good pants without damage.

One man spends a full 8-hour day, five days a week, cleaning the garage and shop. For cleaning the floor he uses a mop and a bucket of solvent. He puts on wax with a mop and buffs it down with a motor-driven floor machine.

Fred Davis, superintendent, said they work on the theory that every man is a cleanup man and hold each man responsible for any dirt left from his job. They are told that the job is never completed until the mess is cleaned up. See page 44.



Long on Lubes, Short on Troubles

by W. T. NOLAN, Fleet Superintendent, Tivoli Brewing Co., Detroit

IN OUR fleet of 74 trucks, we believe that oil and grease—and lots of it—are the finest way of keeping the fleet on the road, where it belongs, at a minimum cost. We use 80 gal. of oil per month and 50 lb. of lubrication grease.

Although some of our trucks are 13 years old, and none of them newer than 1941, we have remarkably few major breakdowns, very little trouble with transmissions, con-rod bearings, differentials or motor trouble.

In my office I have a permanent blackboard that is a valuable fixture in controlling oiling, greasing and battery work.

A little procedure that keeps us well informed as to fleet operating condition is that fact that our mechanics drive the trucks to the gas pumps nightly. This may be a small matter, but these short runs are sufficient to give our mechanics a first-rate idea of the mechanical condition of every truck. See page 51.

Effect of the AASHO Code on Truck Design

by **FRED B. LAUTZENHISER**

Consulting Engineer, International Harvester Co.

Determining permissible load on groups of axles is a complicated procedure; 6-wheel trucks and tractors not favored by Code

AFTER long and careful study of all the various points of view—the engineering requirements, traffic densities, costs of both highway construction and maintenance and of anticipated revenue—in conjunction with the proposed three billion dollar Interstate Highway construction program, the Highway Transport Committee of the American Association of State Highway Officials—headed by Deputy Commissioner H. S. Fairbank, U. S. Public Roads Administration, as chairman—developed a standard set of sizes and weights for trucks and truck trailer combinations which has been adopted by a large majority vote of all State Highway Departments.

The AASHO Size and Weight Code has at least two primary objectives, First, to provide uniformity among States, and second, to provide more liberality in those States which are below the average of the great majority. The AASHO size and weight standards are intended to protect highways.

Comparison of the various values incorporated in the AASHO code with certain individual State restrictions will, in some cases, disclose more liberality by the State, while with others, more liberality by the AASHO code will be evidenced. This phase represents a necessary compromise on the part of the AASHO in proposing the code.

It is not the intention nor recommendation of the AASHO that any State should reduce or lower any of its existing legal size and weight standards to correspond to the proposed code. It is the intent, however, to which the majority of State Highway Departments have agreed, that all existing sub-standard restrictions should be raised to at least the level of the AASHO code, as rapidly as legislative requirements will permit.

These three points should, therefore, be borne constantly in mind when studying the code:

1. These AASHO motor vehicle size and weight standards apply to existing highways.
2. No State should lower any existing size and weight standard.
3. States with sub-standard restrictions should raise their

AASHO SIZE AND WEIGHT STAND.

1. Width: No vehicle, unladen or with load, shall have a total outside width in excess of 96 in. (Note: It is recognized that certain conditions inherent in the design of vehicles suggest the desirability of 102 in. as a standard of maximum width, but the existence of numerous bridges and a large mileage of highways too narrow for the safe accommodation of vehicles of such width precludes the present adoption of the higher standard of width. The State highway departments and the Public Roads Administration are urged to give serious consideration to the desirability of eventual provision for the accommodation of vehicles 102 in. in width in planning the reconstruction of Federal-aid and State highways.)

2. Height: No vehicle, unladen or with load, shall exceed a height of 12 ft., 6 in.

3. Length: (a) No single truck, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 35 ft.

(b) No single bus, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 40 ft., provided that a bus in excess of 35 ft. in overall length shall have not less than 3 axles.

(c) No combination of truck-tractor and semi-trailer, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 50 ft.

(d) No other combination of vehicles shall consist of more than two units, and no such combination of vehicles, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 60 ft.

4. Speed: (a) Minimum speed. No motor vehicle shall be unnecessarily driven at such slow speed as to impede or block the normal and reasonable movement of traffic. Exception to this requirement shall be recognized when reduced speed is necessary for safe operation or when a vehicle or combination of vehicles is necessarily or in compliance with law or police direction proceeding at reduced speed.

(b) Maximum speed. No truck shall be operated at a speed greater than 45 mph. Passenger vehicles may be operated at such speeds as shall be consistent at all times with safety and the proper use of roads.

(c) Vehicles equipped with solid rubber or cushion tires shall be operated at a speed not in excess of 10 mph.

5. Permissible Loads: (a) No axle shall carry a load in excess of 18,000 lb. (Note: An axle load shall be defined as the total load transmitted to the road by all wheels whose centers may be included between two parallel transverse vertical planes 40 in. apart, extending across the full width of the vehicle.)

standards to at least the level of the AASHO code; which is considered as a "minimum—maximum" or a "floor level" below which no State should legislate, but above which the State should legislate to the extent justified by local conditions of traffic frequency, density and magnitude.

Discussion of Code

AT THE first annual postwar convention of the AASHO, held in Cincinnati in November, 1944, B. B. Bachman, representing the Motor Truck Division of the Automobile Manufacturers Asso., presented a highly comprehensive paper on the "Truck of the Future" in which he outlined the vehicle manufacturers' reasons for needing liberalized size and weight laws. Mr. Bachman especially emphasized the need for the 102-in. width, in order to provide greater safety and economy of vehicle operation. Briefly, the increased width would permit more space for improved brake design, better spacing of dual tires, wider frames and spring centers, and consequently improved stability—etc. That the AASHO recognizes this need for the 102-in. width is evidenced by the note incorporated in their code with item No. 1, covering WIDTH, in the Code Table.

The restriction on HEIGHT, to 12½ ft., is probably the least debatable of all. This is based on a study of underpass clearances over the entire nation, having in mind the ve-

ARDS CODE AS FINALLY ADOPTED

(b) No group of axles shall carry a load in pounds in excess of the value given in the following table corresponding to the distance in feet between the extreme axles of the group, measuring longitudinally to the nearest foot:

Distance in feet between the extremes of any group of axles	Maximum load in pounds carried on any group of axles	Distance in feet between the extremes of any group of axles	Maximum load in pounds carried on any group of axles
4	32,000	31	53,490
5	32,000	32	54,330
6	32,000	33	55,160
7	32,000	34	55,980
8	32,610	35	56,800
9	33,580	36	57,610
10	34,550	37	58,420
11	35,510	38	59,220
12	36,470	39	60,010
13	37,420	40	60,800
14	38,360	41	61,580
15	39,300	42	62,360
16	40,230	43	63,130
17	41,160	44	63,890
18	42,080	45	64,650
19	42,990	46	65,400
20	43,900	47	66,150
21	44,800	48	66,890
22	45,700	49	67,620
23	46,590	50	68,350
24	47,470	51	69,070
25	48,350	52	69,790
26	49,220	53	70,500
27	50,090	54	71,200
28	50,950	55	71,900
29	51,800	56	72,590
30	52,650	57	73,280

(c) The maximum axle and axle-group loads recommended above are subject to reasonable reduction in the discretion of the appropriate highway authorities during periods when road subgrades have been weakened by water saturation or other cause.

(d) The operation of vehicles or combinations of vehicles having dimensions or weights in excess of the maximum limits herein recommended shall be permitted only if authorized by special certificate issued by an appropriate State authority.

hicle's vertical body travel due to spring action and the lessened clearance in winter due to snow and ice covered roads. For the specific case, the AASHO provides for special permit issuance in the final paragraph of the code.

The matter of LENGTH is quite generally agreed by all concerned to be reasonable. Two points, however, should be pointed out that might not be recognized at first glance.

1. Although the length of a single truck is restricted to 35 ft., there is no individual restriction on the length of (TURN TO NEXT PAGE, PLEASE)

Fig. 2—Conventional type front-end tractor with semi-trailer. Illustrating the method of determining maximum gross combination weight permitted by AASHO Size and Weight Standards Code. In this case it is assumed that the nature of the operation will justify the maximum AASHO length of 50 ft. overall for the combination. There is no AASHO length restriction for either of the individual units. It will be noted by following through the sequence of procedures that the bridge formula values of the AASHO table are ineffective and that the gross is controlled by the 18,000-lb. axle load restriction. Theoretically therefore, the total gross could be 54,000 lb. by the AASHO Code. However, present truck design does not permit anywhere near an 18,000-lb. load on the front axle. Note that this semi-trailer is 40 ft. long. If this trailer were less than 20 ft. long, the gross for the combination would be reduced in direct proportion to its reduced length, as shown on AASHO table of loads. If the tractor were of the c.o.e. type, with

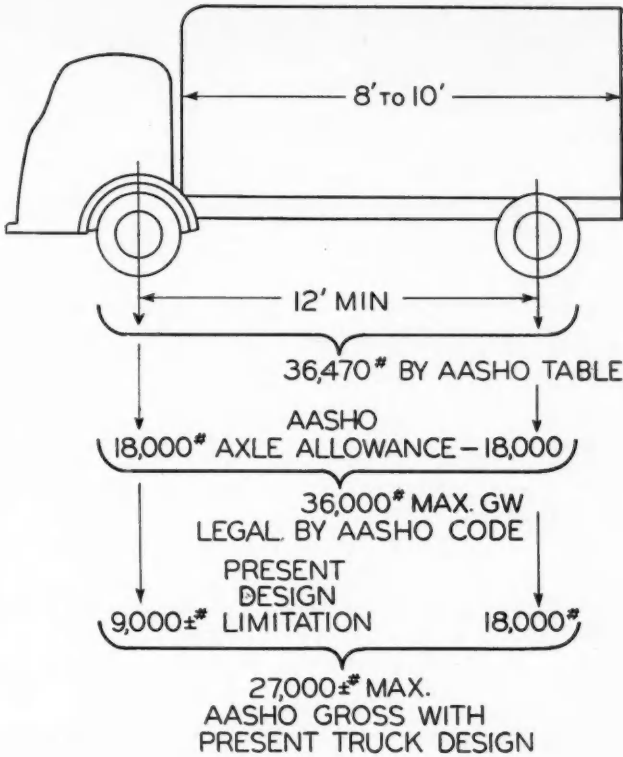
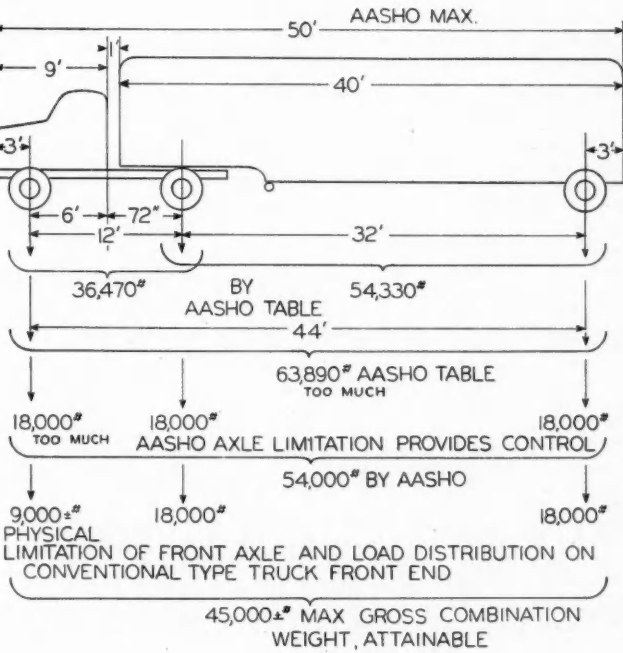


Fig. 1—The best normal load distribution for the present day 4 x 2 truck is generally conceded to be closely in the neighborhood of 1/3, 2/3 gross front and rear respectively. This means a maximum gross weight of approximately 27,000 lb. The AASHO Code will permit a total gross of 36,000 lb., with 18,000 lb. on each axle. In this case, the wheelbase or the "L" value is not effective. For a 50-50 per cent gross distribution between front and rear axles, a new truck design would be necessary, involving a heavier front axle with dual front tires and power steering, etc. This however, would mean a gain of at least 3 tons more net payload.



the same 72-in. C.A. dimension, its wheelbase would be but approximately 7 to 8 ft.; therefore, a further reduction of gross combination weight would be suffered. This is of great importance to users of comparatively short semi-trailers, especially private operators and contract haulers

... Effect of AASHO Code

Continued from page 39

either a semi or a full trailer other than that physically possible under the length restriction for the combination (tractor and semi or other combination) that might be involved.

2. Subparagraph (d) under LENGTH, does not permit the three-unit type of "double bottom," (tractor, semi and full trailer) combination. At least 19 States have permitted this type of combination to operate over many years. It is a highly popular combination, especially in the more expensive types of vehicles such as are used in the transportation of dairy and petroleum products and certain other commodities, and represents millions of dollars' worth of equipment investment.

A maximum speed of 45 mph undoubtedly will meet with howls of protest, especially by some truck operators who couldn't possibly maintain schedules of the past, or as now established.

Information is to the effect that the 18,000-lb. AXLE LOAD restriction is the maximum that ever will be considered by the AASHO and the PRA, even for the 40,000 miles of new Interstate highways to be constructed. No particular comment is necessary in connection with the definition in the note to the effect that axles spaced 40 in., or less, are considered the same as a single axle and permitted 18,000 lb. gross for the group. For a greater load the spacing of the axles must, of necessity, be greater than 40 in. in order to accommodate the larger tire sizes with capacities indicated by such greater loads.

Determination of PERMISSIBLE LOADS on groups of axles, having to do with GROSS VEHICLE WEIGHT and with GROSS COMBINATION WEIGHT becomes a rather involved and complicated procedure—becoming progressively more so with the greater number of axles that might be involved.

It should be carefully noted that the code specifically refers to "groups of axles," and that the load permitted on "any group of axles" is taken from the Table in keeping with the spacing to the nearest foot (15 ft. 5 in. = 15 ft., 15 ft. 6 in. = 16 ft.), measured longitudinally between the "extreme axles of the group." In the past, in States where permissible gross weight was determined by "bridge formula" calculation, many errors were made in final gross weights, both by operators and by enforcement officers, because the adjective "any," modifying the noun "group," was frequently ignored. In fact, it was actually, although inadvertently, omitted from the State laws themselves in several cases.

With the exception of loads permitted on axle groups spaced from 4 to 7 ft. inclusive, which are arbitrarily established at 32,000 lb., all other load allowances given in the "axle-spacing-load-allowance" table for convenience and simplicity of use, are the result of calculations based on the bridge formula:

$GW = C(L + 40)$, when—

GW = Maximum Allowable Gross Weight Lb.

C = A Multiplier or Constant Value.

L = Spacing in Feet Between Any Two Axles.

C = 650 when L is less than 18 ft.

C = 750 when L is 18 ft. or over.

The above formula with its varying values for "C" in order to make the table of loads proportionately progressive, is resolved into the following formula:

$GW = C(L + 24) - 3L^2$. In which case the value of "C" is 1025 regardless of the "L" spacing distance.

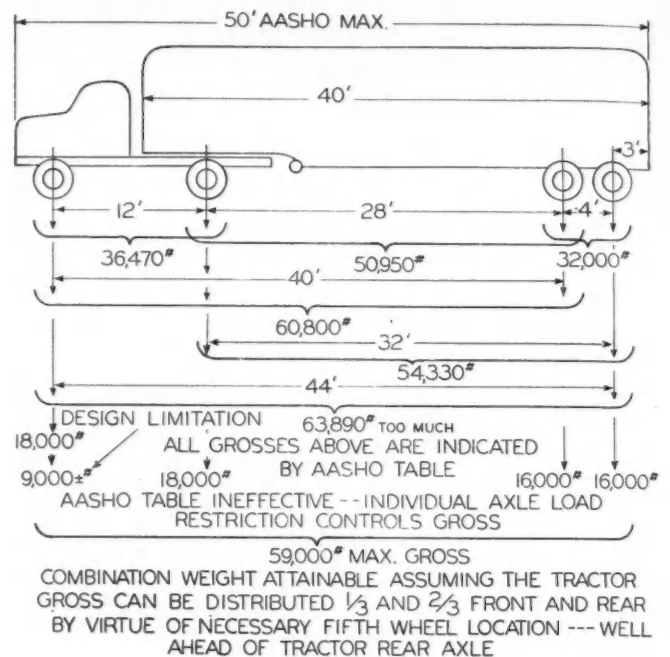


Fig. 3—Conventional type tractor with tandem axle semi-trailer. As with the tractor and single axle semi-trailer, we find that the AASHO bridge formula table is ineffective because the individual axle gross limitation of 18,000 lb. for the tractor also the 32,000-lb. restriction of the 4-ft. spaced tandem under the trailer, provide the control. By comparison with Fig. 2, it is noted that the substitution of the tandem axle under the trailer in place of the single results in an increase in gross combination weight of 14,000 lb. Operators of this type of equipment might limit their own loads to 24,000 lb. on the tractor, resulting in front and rear axle loads of 8000 and 16,000 lb., respectively, for the sake of tire size uniformity throughout, under the combination. It is seen from this that the way to increase gross is by adding the second axle to the semi-trailer.

The reason for bridge formula determination or of load allowances being established on an axle spacing basis is to avoid load concentrations between spans on bridges. Generally speaking, the wider the axle spacing, the heavier the load can be because it is spread over a greater portion of the bridge structure.

This basis for determination of axle and gross load allowances, definitely places a premium on long wheelbase vehicles and on long axle-spaced combinations. For the common carrier, this is not too objectionable as he generally wants as much loading space as he can get. However, contract haulers and especially private operators—those users of more specialized equipment, transporting heavy but compact loads, from the very nature of their operations—in some cases, will be hard pressed to justify the unnecessarily long equipment for reasons other than that of gross load.

How to Determine Gross Weight

IN INVESTIGATING maximum gross vehicle or combination weight by AASHO bridge formula table, the very first step and one of great importance, is to prepare a diagrammatic sketch of the types of vehicles under consideration, with the various pertinent dimensions, overall lengths and axle spacings accurately set in.

Second, the AASHO load allowances taken from the Table, should be set in under every one of the various axle groups.

The third step is the determination of the greatest common divisor of the various AASHO table values for the variously spaced axle groups. This is easily found by dividing the AASHO load allowance by the number of axles involved

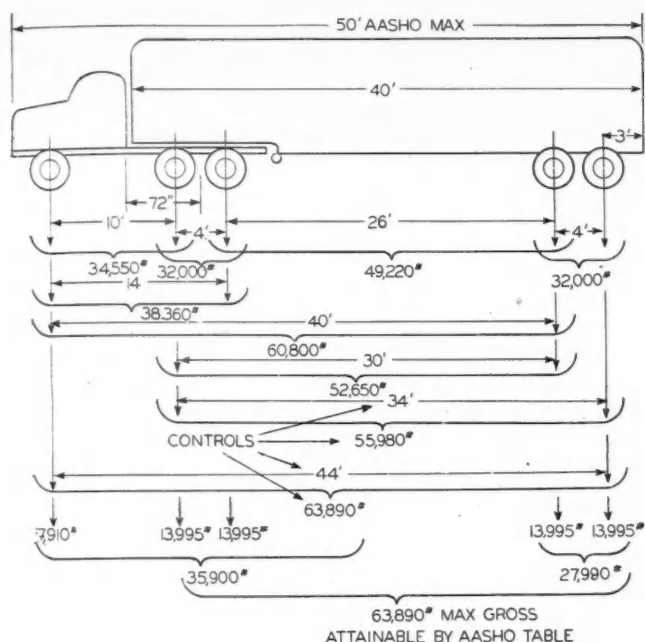


Fig. 4—Conventional front-end six-wheel tractor entrained with tandem axle semi-trailer. With this combination the greatest common divisor is found under control of the 55,980-lb. load, permitted on the four load carrying members constituting the tractor tandem and the trailer tandem axles with overall spacing of 34 ft. This total resolves into an individual load of 13,995 lb. for each of the four axles in this group. This is the effective axle load, because it is less than any load indicated for individual axles of any other group and also less than the restriction for a single axle or for half a tandem. Deducting this four-axle gross of 55,980 lb. from the total of 63,890, indicated for the entire combination by its 44-ft. spacing, leaves 7,910 lb.-load allowance for the tractor front axle. Although this combination permits 4890 lb. more gross than a two-wheel tractor pulling the same trailer, for other than the superior traction of its four driving wheels it would hardly be justified because by far the greater portion of the increased gross would be washed out by the greater weight of the six-wheel tractor, to say nothing of its higher initial cost

in the particular group. If that greatest common divisor is less than the maximum allowed for single axles, 18,000 lb., or than the 16,000 lb. allowed for each individual member of a tandem axle, then that greatest common divisor becomes the maximum load allowance for each axle in the group under consideration. If that greatest common divisor is greater than the AASHO 18,000-, or 16,000-lb. flat restriction, then this latter value provides the guide to the total gross permitted for the vehicle or the combination.

The fourth step is the determination of the truck or tractor's front axle gross. In some cases, this will be the manufacturer's rated capacity, while in others, it will be the nearest approach to ideal load distribution that can be attained; i.e., approximately one-half the amount of gross load indicated for the vehicle's single axle by the third step above, whether it be a four- or a six-wheeler. This generally will result in good load distribution of approximately 1/3, 2/3 gross front and rear for the four wheeler, and of 20, 40, 40 per cent front, center and rear for the six-wheeler.

The fifth and final step is, of course, to total up the indicated axle loads into the maximum gross vehicle or gross combination weight that is attainable, being careful to check against the gross indicated in the AASHO table for the spacing between the very first to the very last axle under the vehicle, or the combination being considered.

A few random observations might be of interest.

Reference to Figs. 4 and 6 will show that the bridge

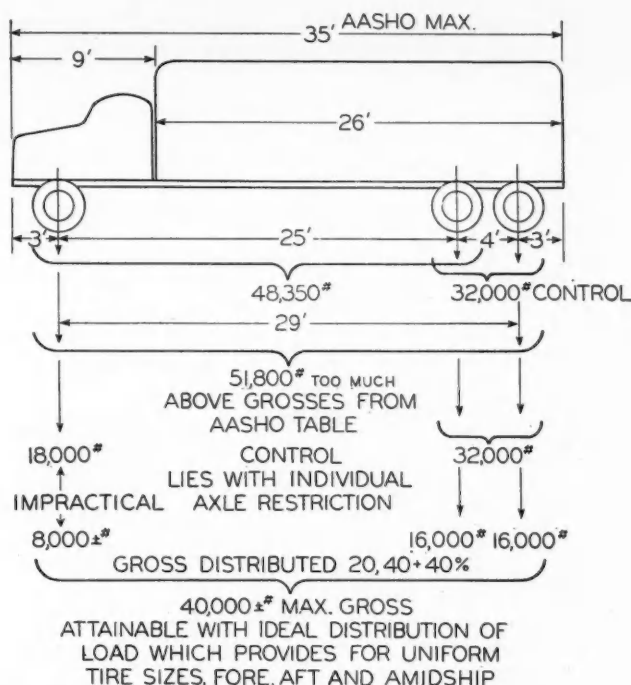


Fig. 5—Conventional front-end six-wheel truck. In this case, where advantage again has been taken of the maximum overall length permitted by the AASHO code, 35 ft., the bridge formula table is ineffective because the individual axle load restrictions provide control. 40,000 gross is the maximum attainable on any six-wheel truck until such time as new truck design permits heavier front-end loading, resulting in a 1/3, 1/3, 1/3 gross weight distribution on axles. Thus, the gross could go to 50,000 lb. with full AASHO approval. This layout is quite typical of any heavy six-wheel truck because shortening up the wheelbase sufficient even to accommodate a 12-ft. body—about the shortest that would ever be mounted—will reduce the gross but a few hundred pounds

formula has reduced the otherwise AASHO approved 18,000-lb. axle load allowance as much as 22 and 42 per cent respectively!

If bridges could be eliminated, the bridge formula could be eliminated and a vehicle or combination could be permitted an additional 18,000 lb. gross for each additional axle that could be put under the vehicle, or combination, provided the overall length restriction were not violated. This would mean 50,000 lb. gross for a six-wheel truck (less its front-end design limitation); also 50,000 lb. gross for a six-wheel trailer, regardless of axle spacing. That would be ideal for operators.

Sooner or later, some intrepid, pioneering soul will design a four-wheel truck with a 50-50 per cent load distribution, front and rear, and a six-wheeler with a distribution of 1/3 on each of its axles, in order to take advantage of the 36,000 and the 48 to 50,000 lb. grosses the AASHO code will permit on four- and six-wheeler, respectively.

With some combinations, that shown in Fig. 6, as an example, a somewhat different combination of component units is indicated in truck design than has been used in the past; i.e., a rather powerful engine of around 500-cu. in. displacement to pull the gross of the combination, with but low load carrying capacity axles, springs and frame—however, the various gear sets must be adequate to accommodate the torque output of the comparatively high output power plant. For such light axle loads comparatively small tires would be required, around 7.50 or 8.25-20, and, therefore, small wheels.

The question is what to do about brakes and where to put

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them? Service brakes on the propeller shaft might be the answer.

A careful study of the diagrams will lend the belief that when, and if, the AASHO size and weight standards become ipso facto by virtue of legislation, the heavy six-wheel truck and tractor truck will fade out of the picture, except in those States that permit more liberality than the AASHO. Why? Because three axles under a tractor and semi can gross 5,000 lb. more than when under a straight truck. Also, because a two-axle tractor pulling a tandem semi can handle as much, or more, net payload than the same semi with a three-axle tractor. Also, because a two-axle truck pulling a two-axle full trailer can handle much more net payload than a three-axle truck pulling a three-axle full trailer.

The innumerable various types of vehicles and combinations possible and to be expected, from a dimension and axle spacing standpoint, make it impracticable to diagram all of them in an article of this length. Fig. 6, as an example, shows a 26-ft. body on the truck and a 20-ft. body on the trailer. If these bodies were reversed, the control spacing between axles 2 and 6 would be increased from 29 to 35 ft.;

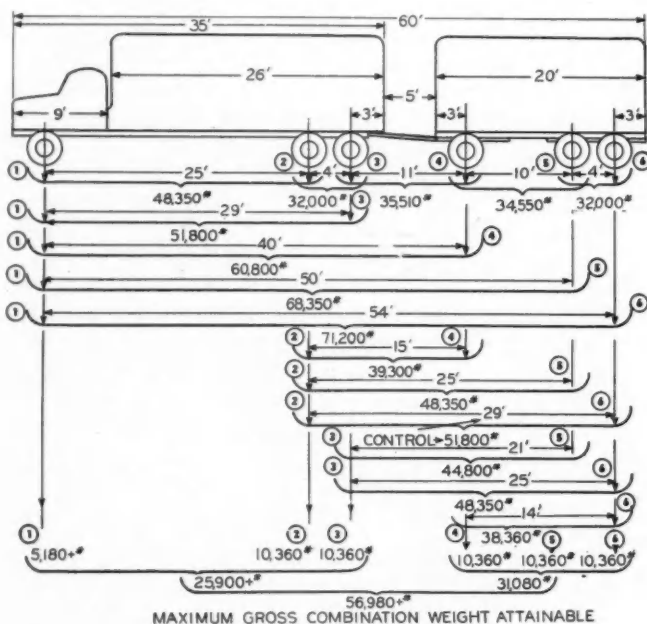


Fig. 6—Conventional type front-end six-wheel truck entrained with six-wheel full trailer. In this case we find the greatest common divisor for AASHO axle group load allowances to be vested in the 51,800-lb. gross permitted by the 29-ft. spacing of axles (2) and (6). This means that each of the five axles therein encompassed can gross but 10,360 lb. This 51,800-lb. total deducted from the presumably permissible gross for the combination, 71,200 lb., by virtue of the 54-ft. spacing between axles (1) and (6), leaves 18,400 lb. for the tractor front axle. This being altogether impractical from a design and load distribution standpoint, a load of 5180 lb. is indicated for the front so as to result in a perfect 20, 40, 40 per cent gross weight distribution on the truck or a distribution of the maximum permissible combination gross by elevenths. The maximum permissible gross now totals 56,980 lb. instead of the presumably permissible 71,200 lb. inferred by first glance at the AASHO table. Although this same six-wheel truck when operated independently of the trailer would be permitted to gross 40,000 lb., as shown in Fig. 5, when combined with this trailer its gross is reduced to 25,900 lb. by virtue of the AASHO bridge formula

resulting in an increase of 1000 lb. load on each of the five axles in that group, plus an additional 500 lb. load for the tractor front or steering axle. With the same length bodies as shown in Fig. 6, but carried on a six-wheel truck pulling a four- instead of a six-wheel trailer, the gross, even with the one less axle of this combination, will go up to 58,275 lb., as compared to the 56,980 lb. of the two six-wheelers entrained in Fig. 6.

As another example: A six-wheel truck carrying a 26-ft. body and pulling a 20-ft. body equipped four-wheel trailer will gross 58,275 lb. However, if we reverse these completely—mount the 20-ft. body on a four-wheel truck and pull a six-wheel trailer with a 26 ft. body—the gross will climb to 62,077½ lb.

The importance of a careful analysis of each individual case should not be ignored. Many operators and salesmen of highway transport equipment will have their share of trouble in determining AASHO approved grosses, but how about enforcement officers?

Regardless of whether we individually like all parts of the AASHO Motor Vehicle Size and Weight Standards, if we but realize the problems involved—both engineering and economic—and are aware of the confusion caused by conflicting State laws of the past, we must admit that the AASHO has made an outstanding contribution to motor transport from the standpoint of liberality and especially that of UNIFORMITY.

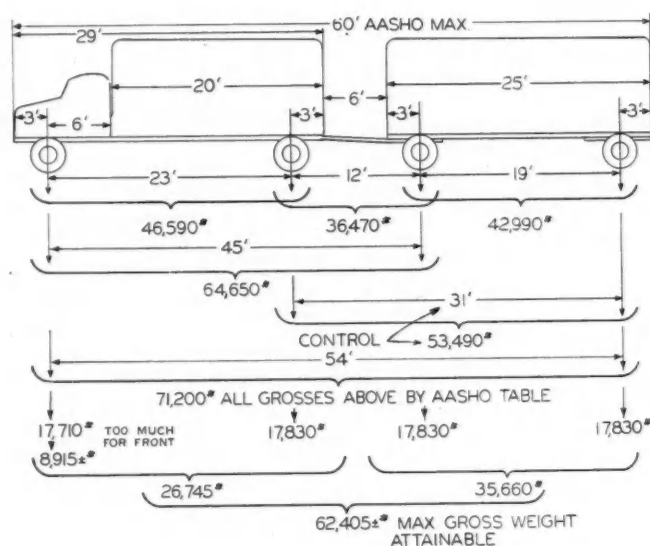
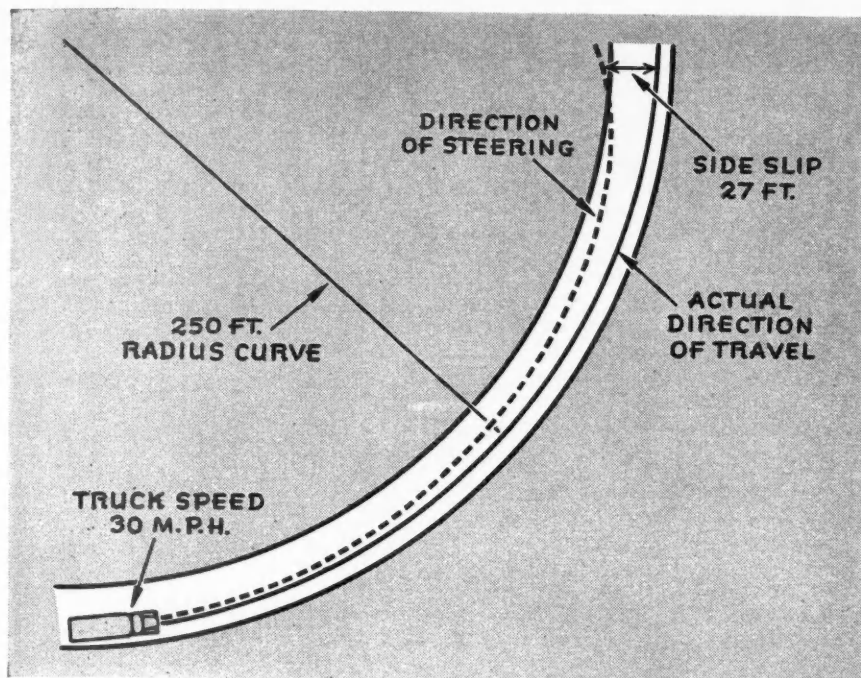


Fig. 7—Conventional type front-end four-wheel truck entrained with four-wheel full trailer. A very interesting result is shown for this combination. The greatest common divisor for AASHO axle group load allowances is found to be 17,830 lb. and is contained in the 31-ft. spacing of truck rear to trailer rear axle which, of course, is divided into three equal axle loads. Deducting this 3-axle total of 53,490 lb. from the 71,200 approved total for the entire combination leaves an indicated load of 17,710 lb. for the truck front axle. This is, of course, more load than present design truck front ends can accommodate. Therefore, optimistically assuming the truck gross to be distributed 1/3, 2/3 between front and rear, an arbitrary gross of 8,915 lb. is established for the front end. The final result is an AASHO approved gross combination weight of 62,405 lb. This is 2425 lb. more gross than is permitted for a six-wheel truck and six-wheel full trailer combination. In addition, the six-wheel truck will weigh around 3000 lb. more than the four-wheeler, also the six-wheel trailer will weigh probably 1000 lb. more than the four-wheeler. Therefore, the sum of these 2425 plus 3000 plus 1000 equals 6425 lb.—approximately 3 tons more net payload that can be transported with full AASHO approval by the combination of two four-wheel vehicles than by the two-six-wheelers. And with considerably less initial investment too



Sketch shows total amount of slippage encountered when truck at 30 m.p.h. rounds a 90 deg. curve of 250 ft. radius. Forward travel around the complete curve is approximately 400 ft.

Curve Radius	Slippage in feet per 100 ft. of forward travel
1125 ft.	.375
750 ft.	.75
500 ft.	1.5
250 ft.	3.
125 ft.	6.
62½ ft.	12.
31¼ ft.	24.

Slippage also increases as the square of the vehicle speed. Here is how speed increases affect slippage on a 250-ft.-radius curve:

Speed m.p.h.	Slippage in feet per 100 ft. of forward travel
10	.75
20	3.
30	6.75
40	12.
50	18.75

It is assumed in both cases above that road is dry, practically flat and of average surface construction. Banking would, of course, reduce the slippage. Vehicle weight, though it introduces variables, is not too important because increases in tire sizes are generally proportionate to increases in weight. Passenger cars have a greater tendency to slip, because of relatively lower air pressure and greater tire deflection.

As is often the case, figures alone are hard to interpret. But consider it this way. Suppose your truck rounds a 250-ft.-radius curve at 30 m.p.h. There are still many such curves on our American highways. To help visualize just how sharp this curve would be, we did a little figuring and found that to make a 90 deg. turn on such a curve, a vehicle would move forward approximately 400 ft.

Now, according to the table, for every 100 ft. the truck moves forward around our hypothetical curve at 30 m.p.h., it actually slips sideways 6.75 ft. By the time it completes a 90 deg. arc, it has slipped a total of 27 ft. and, in so doing, it has consumed an amount of tread rubber equal to 8000 ft. (a good mile and a half) of straight traveling, because wear on curves averages 20 times the wear on straight roads. See above drawing.

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Why Tires Wear Faster on Curves

Wear is approximately 20 times greater than on straight roads for a given distance and speed; solution is low speed

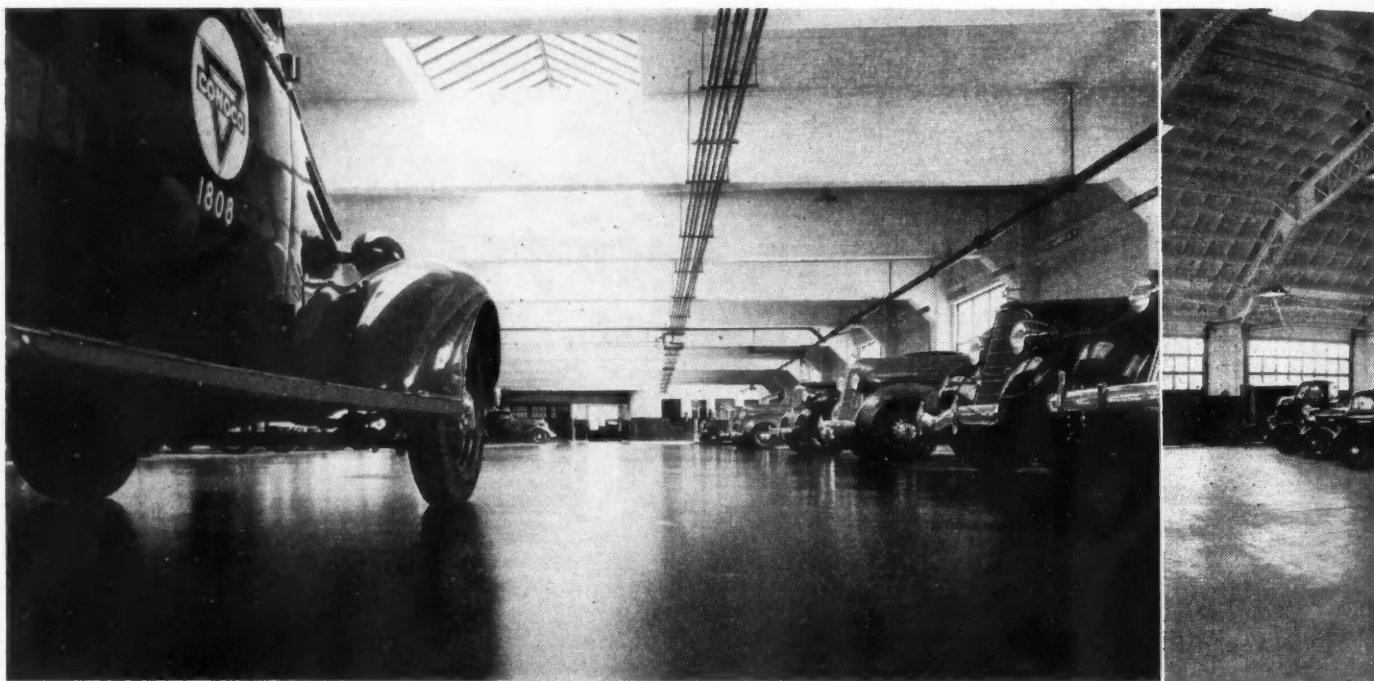
THE increase in tire wear occasioned by slippage on a curve is probably a subject few fleetmen have taken much time out to think about. But the statistics contained on this page, indicate that it is a subject truck operators would do well to consider, particularly from the standpoint of driver education.

Change in the direction of a moving vehicle is obtained by the reac-

tion of the tire in contact with the road surface. This reaction causes tire slippage and the amount varies from practically nothing on large curves at slow speeds to full skidding on sharp curves at high speeds. And this slippage applies to rear tires as much, if not more, as to front tires; it is common knowledge that it is usually a rear tire that breaks into a full skid before a front one does.

Just what this slippage amounts to on varying curves at 20 m.p.h. is shown in the following table:

Editor's Note: Data for this article supplied by Messrs. McCarthy and Shively of The Goodyear Tire & Rubber Co., Akron.



The floors of Conoco's well-lighted shop are kept bright as a mirror. In fact one can sit on them without soiling his clothes

CLEANLINESS is Part of Conoco's



While one full-time cleanup man is employed, mechanics must clean bench and working area, dispose of all litter and replace tools when a job is finished. System pays, says manager

by L. H. HOUCK

IF DIRT was trumps, what hands you would hold,"—a Charles Lamb quotation that might have been written about the automobile garage business if there had been any in his day.

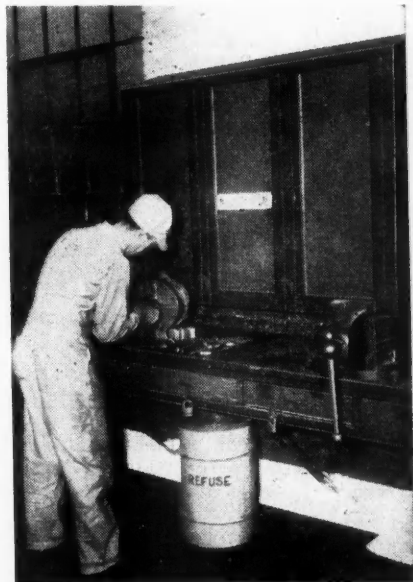
While mechanics, garages and repair shops are not synonymous with grease and dirt, neither have many taken prizes for general cleanliness and tidy housekeeping.

Yet cleanliness in mechanical things—clean oil, clean motor, clean chassis—pays big dividends in preventing this unpopular abrasive from getting into bearings and into moving parts to grind out the life of the vehicle.

Admitting that these things be at least remotely true of the industry, it came as something of a shock to walk into the large garage and shop of the Continental Oil Co., Ponca City, Okla. Here is a garage floor that you can see yourself in. You can sit down on it in your good pants without damage—and, for a place to eat, it would put to shame the average hashery counter.



Fluorescent lighting, spotless walls and roof help that well-groomed appearance



A refuse can is provided for every two men. White strip all along base of wall aids cleaning, improves appearance

Fleet Maintenance

Here cleanliness is certainly contagious; every employe is soon made dirt-conscious and every one is a self-appointed auxiliary cleanup man.

T. D. Harris said it was good business, it was profitable and was just as important as for a salesman to keep his shoes shined and for a merchant to keep the floor clean and the windows dressed. Harris is manager of the Motor Transportation Department, which is a far-flung empire, involving the control of the company's trucks and rolling stock all over the United States.

Here is what they do.

Full-Time Cleanup Man

ONE man spends a full 8-hr. day, five days a week, cleaning the garage and shop. For cleaning the floor he uses a mopy and a bucket of solvent. He puts on wax with a mop and buffs it down with a motor-driven floor machine which uses a rotary brush. This brush is equipped with fiber bristles.

On regular work-days he is inter-

rupted considerably by the flow of business—trucks and cars going in and out.

So he works around the edges, on the walls, removes any pools of grease or oil that have dripped from vehicles, empties waste baskets, cuspidors, and spends all of his working time in tidying up the place.

His week is so arranged that he works on Sunday when all other work has stopped. On this day he applies wax if needed and does all the cleanup jobs that cannot be accomplished through the week. Worn spots are painted.

The floor and walls are painted periodically and he is present at painting times, although the painting is done by a large crew which gets it on in a hurry so the drying can start.

There are times when the regular cleanup man is given two or three ment to help if they are needed. They have two floor buffing machines.

But just because there is a regular cleanup man, or a crew, does not re-

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Fluorescent lighting, wastebaskets, spittoons and non-litter locker tops characterize this cheerful shop locker room

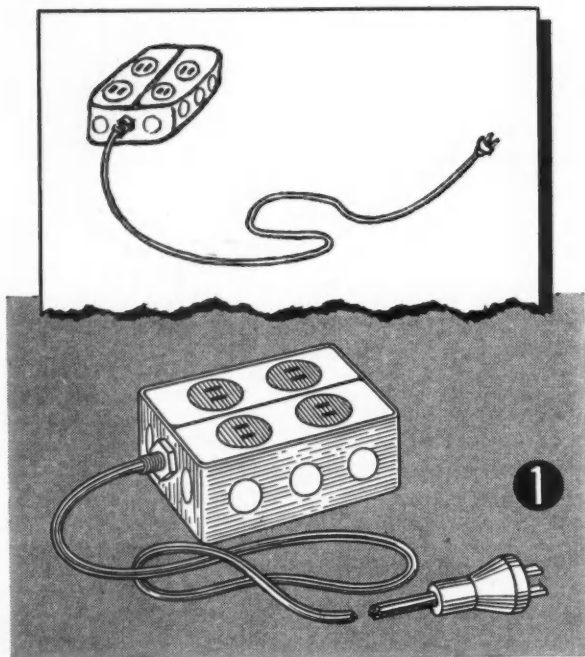


One man spends a full 8-hr. day, five days a week cleaning the garage and shop. Machines polish floor daily



SHOP and

Commercial Car Journal will pay \$5 for acceptable shop hints and \$5 for parts salvage tips. A snapshot or a rough drawing with a simple explanation is all that is needed. CCJ will polish them for publication. Send one in today! Shown below is a typical contribution—just a rough sketch and a brief statement of the problem and its solution. See how it looks in Fig. 1. This brought Mr. Upperman \$5. There are other \$5 bills waiting for your contributions. Don't underestimate your ideas. Let the editor judge.



1. Multiple Outlet Extension Line

by G. E. Upperman, Continental Baking Co., Wheeling, W. Va.

Here is a useful hint for the mechanic doing body work where a number of electric tools such as an electric drill, an electric shear, a floor lamp, etc., is required.

It is an outlet box fitted with two double plug-ins. The box is wired

with heavy rubber-covered wire, which is secured to the outlet as shown in the drawing. This device can be attached to the nearest light socket, and can be moved anywhere.

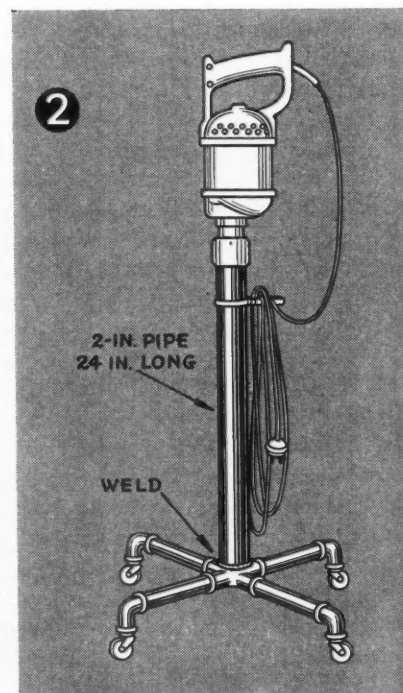
Since I made the tool, I find it is very popular with mechanics.

2. Electric Drill Stand

by G. E. Upperman
Continental Baking Co.
Wheeling, W. Va.

Here is an electric drill stand that I have made for the mechanics in our shop. This stand is made from old water pipe, using whatever lengths may be required. The legs themselves are of 1-in. diameter pipe, while the upright is of 2-in. pipe. This piece is welded to the leg pieces as shown. Regular casters are secured in the legs with weld or with iron cement or any similar material. A hook is welded to the upright so that the cord can be hung on it. Other models I have made have a square box to house the drill cord.

This idea can be used for other tools. For instance, I have made a stand for the brake drum turning machine and all equipment necessary for this operation. It is constructed



SALVAGE HINTS



along similar lines and is a handy tool also for special jobs.

3. Windshield Wiper Salvage

by John M. Kavanagh, Fleet Super.
Hegeman Farms Corp.
Ridgewood, N. J.

Here is a little kink that is saving us money and may be of use to other fleets.

Some windshield wiper arms have a hook on the end where the blade is connected. This hook frequently breaks off, necessitating a whole new arm.

We salvage these arms by removing the outer arm bracket and drilling a hole through the arm. We slip the arm, then, over the blade and insert a regular rivet through the holes as shown.

This simple procedure saves us \$1, and the part is as good as new when salvaged in this way.

4. Water Pump Reconditioning

by Preston R. Coleman
Rainey Coke Co.,
Norristown, Pa.

When rebuilding packless water pumps we find the pump body seat rounded or ridged and that some attention is necessary. We have a new system of refacing this seat.

We turn down a discarded pump impeller so that it will turn freely on the pump shaft. We remove the seals and retainers and replace the seal with a regular flat steel washer and a spring steel washer behind it to give proper tension.

Now we place grinding compound on the flat washer and with the old impeller, grind the pump body seat flat. This is done by turning the impeller back and forth as if grinding valves.

We have found this to be one of the simplest and easiest ways of reseating the pump seal.

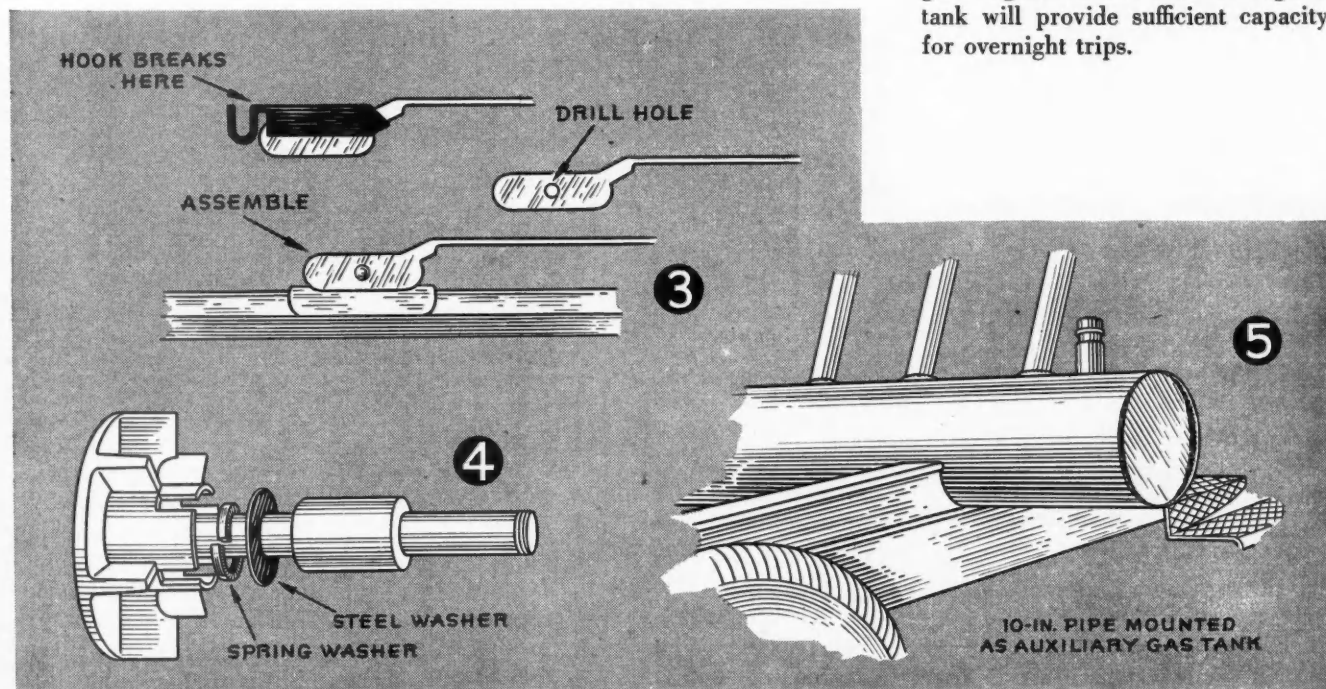
5. Auxiliary Gasoline Tank

by Harry A. Hess
Houston, Tex.

Oil field trucks must have a frame of welded pipe to protect the cab of the truck and driver from injury should the winch line break or should heavy objects be drawn up to the front end of the bed.

One trucking contractor uses a piece of 10-in. line pipe for the base of his guard and plugs the ends so that the pipe can be used as an extra gasoline storage compartment. The pipe is fitted into half-moon cuts by a welding torch which have been made in the top of the truck bed. Three-inch risers are welded to the top of the horizontal piece of 10-in. pipe and form protection for the back of the cab.

These are surmounted by the usual 4-in. cross member. A 2-in. coupling, fitted with a nipple and cap is used as a filler plug. This tank will hold 30 gal. of gasoline and with the regular tank will provide sufficient capacity for overnight trips.



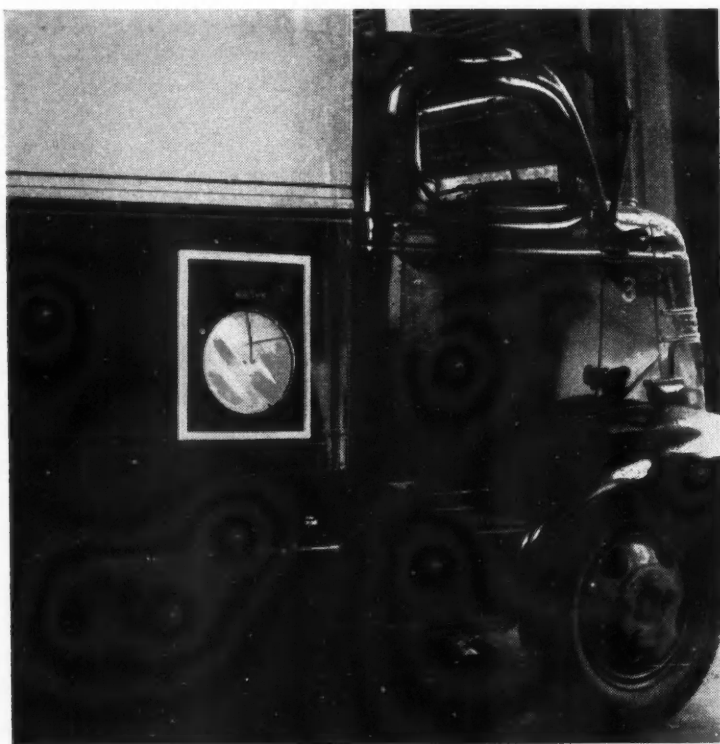


Coming Requirements for Frozen Food Hauls

Indications are that shippers are going to insist on zero temperature while in transit; proof may be required. Recording thermometers will protect fleetmen

A DEVELOPMENT of definite interest to fleetmen engaged in the hauling of frozen foods is currently brewing within the ranks of the frozen food industry. That development is the very definite realization that no matter how good the quality of the original product or how perfectly it was originally frozen, tastiness is lost and bacteria content may become dangerous unless the product is maintained at zero deg. F.—a figure which provides a small margin of safety before the actual danger point of 4 deg. F. is reached. And this temperature factor is equally important during long term storage, during transportation and during storage at the retail outlet.

The effect on truck haulers is at once apparent. If producers and distributors insist on zero—and just what likelihood of this action there is we shall see later—truckmen are going to have to deliver it. What's more, there is a definite indication that at least among one group of producers and distributors definite plans are being made toward insistence of the use of recording thermometers as a guarantee that the correct temperature has actually been maintained. It appears definite that these two qualifications—zero degree temperature and authentic recording of temperature fluctuations to prove it—will sooner or later become a part

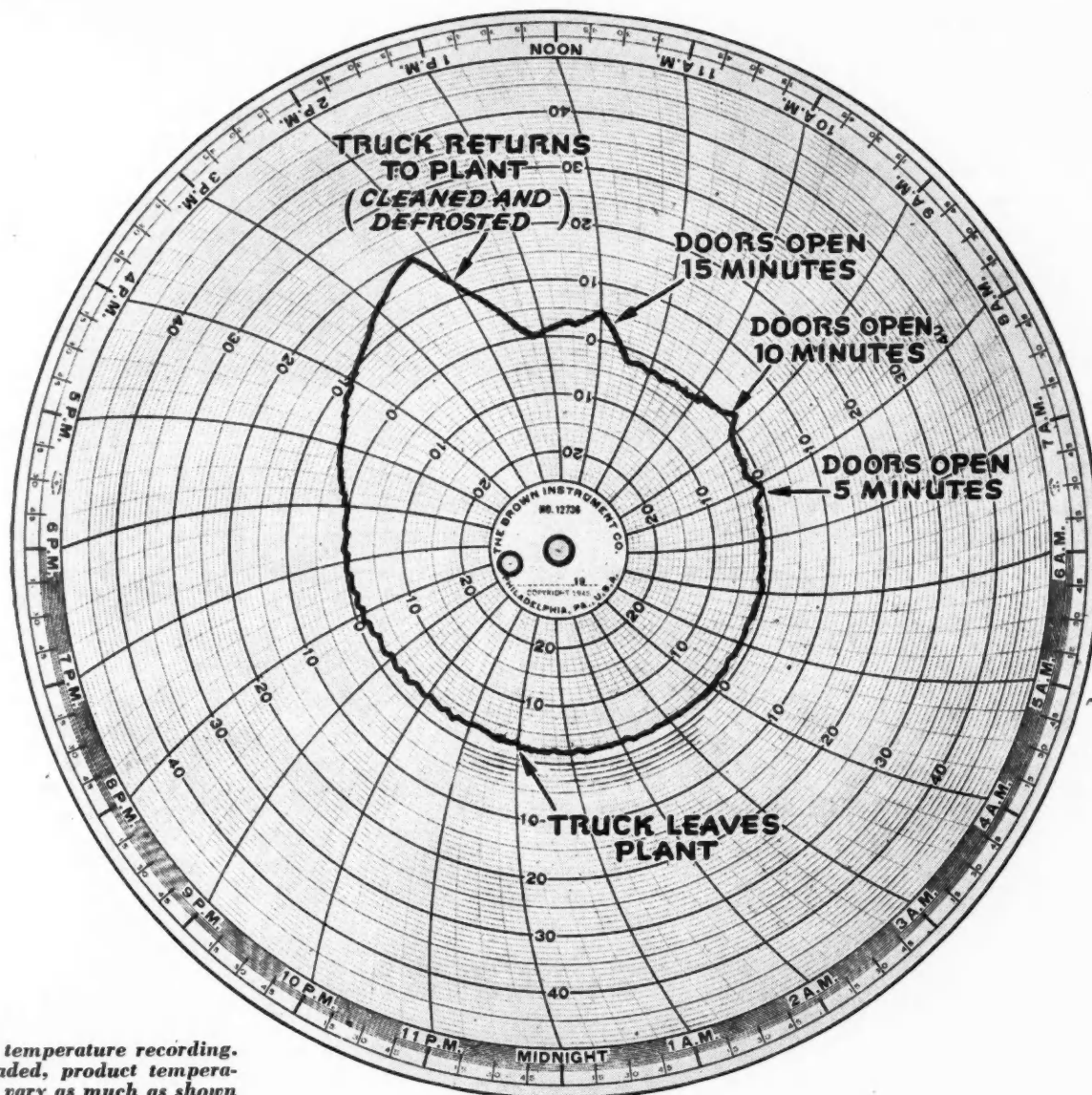


Experimental setup shows typical recording thermometer mounted in a side panel. Other possible locations include front of body, in cab, or portable or permanently mounted units inside body

of many shipping contracts. Fleetmen on their toes and out in front with really good equipment, including top quality refrigerating equipment, insulation and recording thermometers, should inevitably have an edge on competition.

Some Reefers Won't Hold Zero

ALL in the refrigerated trucking business are aware of the practice, so frequently followed, of dumping cargoes on a loading platform and leaving it to dock-boy Johnnie to somehow get the stuff in. But dock-



A specimen of temperature recording. If properly loaded, product temperature would not vary as much as shown

boy Johnnie doesn't always do it right away. That's just one example of many careless practices. On top of all that is the plain simple fact that a lot of refrigerated trucks just won't hold zero deg. F., at least over any protracted length of time.

Most cognizant of all these practices are the frozen food producers and distributors themselves who, somehow, during the war have muddled along but who right now are sparring for the blow. They know that all too frequently their products, perfectly grown and perfectly frozen, reach the dining room table in a tasteless condition because carelessness all along the line of distribution has allowed temperatures to rise. And with temperature rise tastiness goes out the window.

by BART RAWSON

Associate Editor, Commercial Car Journal

These producers and distributors know that if they don't take action two things are going to happen. First, the housewife is going to turn against them, as in certain sections she already has. Second, they know that if they do not lead the fight, there is good indication that Federal and State governments will do the fighting for them. Already there is legislation on some state dockets requiring recording thermometers in frozen food locker plants. More drastic steps may follow.

Drive Started

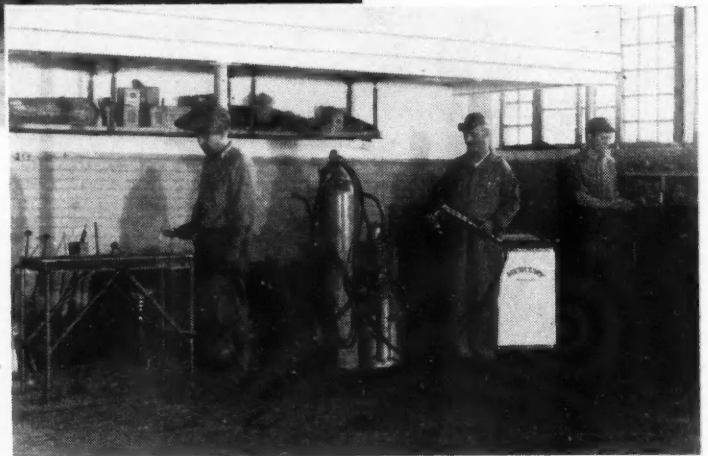
SPEARHEADING the drive for controlled temperatures is the Frozen Food Institute, Inc., a non-profit organization made up of representative frozen food handlers all the way from producers and distributors down through retailers and consumer research and educational groups. Right now this organization is cooperating with at least one temperature control instrument manufacturer in the development and refinement of recording devices that will work in bulk and retail storage areas, railroad cars and trucks, with timing mechanisms that will operate up to 10 days (for transcontinental shipments) and temperature ranges from minus 20 to plus 50 deg. F. Already

(TURN TO PAGE 170, PLEASE)



Two views of the 40 x 60 ft. shop show compact efficiency. Additional equipment, not shown, is fully described in article

A study of methods used by an average 45-truck fleet doing "much better than average" job of maintenance



Smooth Maintenance Nets Smooth Performance

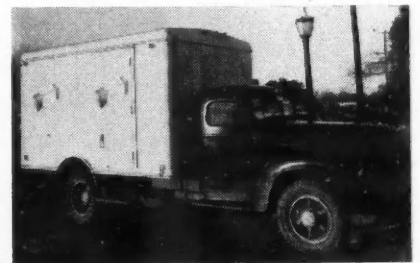


Gus Papas

A FEW months ago we asked Gus Papas, fleet superintendent of Malbis Bakery, Mobile, Ala., to write a story for us about his fleet maintenance. "Shucks," he said, "there's nothing unusual about our operation. It's just an average 45-truck fleet doing its maintenance in an average way." The first part of the quotation is perfectly true, but what modest Mr. Papas left out was that in reality the fleet is doing its maintenance in a "much better than average way." Because it is an average fleet doing top quality maintenance

is exactly why we felt it worthwhile to share the Malbis story with other readers. Any fleetman with a reasonable amount of good equipment could do just about the same thing.

However, the outstanding fact concerning this operation is that every phase of the maintenance program is balanced and integrated so that no one phase predominates. There's an adequate amount of daily inspections and adjustments, the right amount of repairs and replacements to keep road failures to a minimum, intelligent personnel, and a fine supply of tools and equipment to do a good job speedily and efficiently with only two or three kinds of work farmed out. This combination makes



Can you tell which of these typical Malbis trucks is new, which has more than 100,000 miles? The Metro is the older model; both are in top condition

for smooth maintenance which, in turn, results in smooth fleet performance.

Let's look at the unretouched photographs reproduced in Figs. 3 and 4, of typical Malbis rolling stock. (TURN TO PAGE 112, PLEASE)

Fleet Goes Long on Lubes Comes Up Short on Troubles

Policy credited with remarkably few breakdowns and reduction in maintenance. Greaser is key PM man. Control board effective



W. T. Nolan

IN OUR fleet of 74 trucks (no tractors, no trailers), we believe that oil and grease—and lots of it—are the finest way of keeping the fleet on the road, where it belongs, at a minimum cost. We use 80 gal. of oil per month and 50 lb. of lubrication grease. I would rather have grease dripping from a joint because of too much than have metal screaming against metal because of too little.

Greasing, oiling and our tire preservation methods constitute our conception of a preventive maintenance program largely dictated by war's exigencies. But we feel that the plan has not been too bad. Although some of our trucks are 13 years old, and none of them newer than 1941, we have had remarkably few major breakdowns, very little trouble with transmissions, con-rod bearings, differentials or motor trouble that has been so great a headache to so many fleets.

Thousand-Mile Schedule

WE GREASE trucks and change oil every thousand miles. We keep track of individual truck mileage through the use of an Operator's Daily Defect Report, Fig. 2, which gives me speedometer readings at the start and finish of each

day, in addition to repairs that the driver believes the truck should have.

A daily check for oil level is routine with us. Nightly, two mechanics check oil levels, water and gas the trucks. We keep a gas sheet right at the pump which states the number of gallons put in and by whom. This gives us a check for cost accounting as well as eliminating the loss of unaccounted for gasoline.

Sludge is a headache to most fleet operators and it is to us as well. We like and have oil filters on all motors. They are changed as the oil is changed. We have never suffered a great deal through dilution but still sludge collects. We have found no better way of overcoming sludge than by cleaning it out every time the oil is changed. After draining oil, we flush out the crankcase with flushing oil. And any time we overhaul motors we steam sludge away. During winter we always use cardboard covers extending 5 or 6 in. up the radiator shell.

While we may use more grease and oil than some fleets, we have never considered this an extravagance. We are sure that lots of oil and grease is saving us a good deal in the way of maintenance and repair.

We do not use a laboratory analysis service for oil since we have been using the same brand of oil for a good many years. But we do ask for

(TURN TO PAGE 105, PLEASE)

TRUCK NO.	MILEAGE	GREASE	OIL	WASH	WA
1	54623	55123	55123	11-3	
2	45929	46328	46328	11-3	
3	55509	56009	56009	11-3	
4	64092	64592	64592	11-3	
5	73138	73638	73638	11-3	
6	67132	67632	67632	11-3	
7					
10	58098	58598	58598	11-3	
11	47066	47566	47566	11-3	
12	89308	89808	89808	11-3	
14	54724	55224	55224	11-3	
15	88287	88787	88787	11-3	
16	49909	50409	50409	11-3	
17	47061	47561	47561	11-3	
18	82318	82818	82818	11-3	
19	90616	91116	91116	11-3	
20	87824	88324	88324	11-3	
21	65423	65923	65923	11-3	
22	74210	74710	74710	11-3	
23	86441	86941	86941	11-3	
24	74048	74548	74548	11-3	
25	63138	63638	63638	11-3	
26	64882	65382	65382	11-3	
27	56506	57006	57006	11-3	
28	48756	49256	49256	11-3	
29	75066	75566	75566	11-3	
30	65864	66364	66364	11-3	
31	32047	32547	32547	11-3	
32	47882	48382	48382	11-3	
33	67330	67830	67830	11-3	
34	53927	54427	54427	11-3	
35	61399	61899	61899	11-3	
36	62412	62912	62912	11-3	
37					
42	50509	51009	51009	11-3	
43	66993	67493	67493	11-3	
44	54212	54712	54712	11-3	
45	37004	37504	37504	11-3	
60	44190	44690	44690	11-3	
62	21182	21682	21682	11-3	
63	27387	27887	27887	11-3	
64	41435	41935	41935	11-3	
66	23191	23691	23691	11-3	
67	25380	25880	25880	11-3	
68					
69					
70					

Fig. 1. Blackboard used for noting oiling, greasing and battery work. It is located in fleet superintendent's office, so he can check on work necessary

by W. T. NOLAN

Fleet Superintendent, Tivoli Brewing Co.,
Detroit, Mich.



The shop has excellent natural and artificial lighting. It is well equipped with modern tools and equipment

Single front entrance feeds to three rear exits; all maintenance flows to the left, wash and grease jobs to the right. Space in rafters used for tire and stock storage

by JOHN GRONER

President, John Groner Petroleum Transport, Jefferson City, Mo.

Small Shop Plan Features Smooth Work Flow

WE WANTED to correct certain maintenance problems, increase shop efficiency by adding new equipment, and get shelter, floor space and accessibility in our new garage and terminal which has just been completed. Our old shop was too small. It was located too far from our regular routes. Building and floor space were inadequate for proper washing facilities and installation of modern shop equipment.

It cost more than it should to bring our transports to the old shop and back to the loading docks. Lack of some shop equipment made it necessary to send some work out, which was paid for at retail prices. Delays were inevitable and expensive.

On top of this we had little or no adequate covered storage space for our rolling stock. Maintenance schedules were always lagging due to a thousand-and-one reasons.

That is the why of our new building.

We tried to design the new building to fit our operation, with facilities for doing all our work efficiently, quickly and economically. We wanted it just large enough to do the job without wasting valuable space.

We have eight tractors which pull petroleum tank trailers ranging in capacity from 3200 gal. to 5400 gal. In addition, we service two passenger cars.

Most of our hauling is so arranged that we have one spare tractor except under peak conditions. This spare gives us opportunity to switch with tractors in service, do a complete overhaul on the engine, brakes and front-end, with our regular crew and, consequently, most economically.

Manpower Also Considered

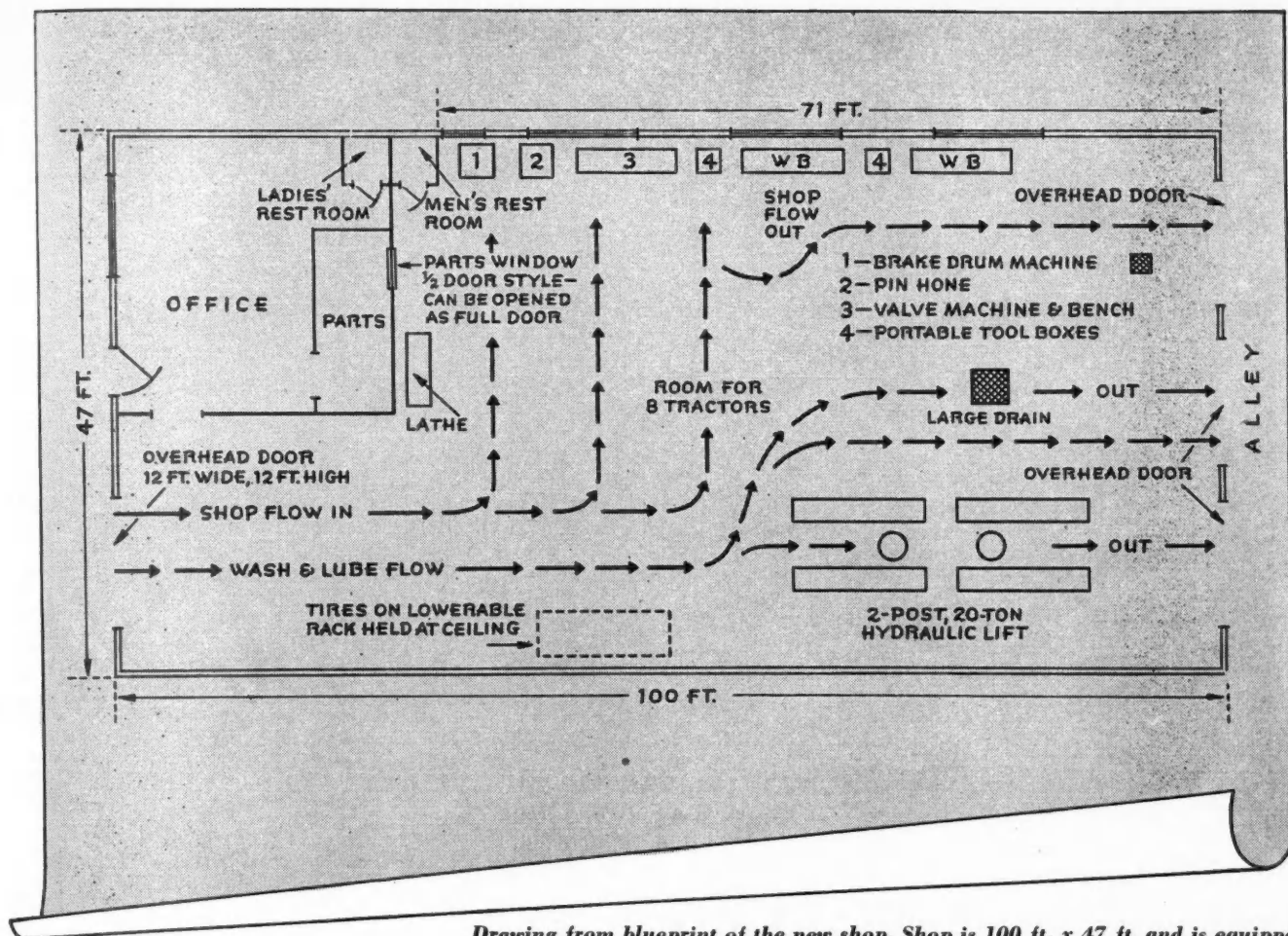
IF WE had to do our overhauls between runs it could be done in shorter time but it would take more manpower. This would make our shop manpower too much on the up and down because there would be

seasons of the year when we would have to cut down on the number of employees since there wouldn't be any work for them to do. Therefore, along with designing the building to fit the size of our hauling operation, we also planned the work so that we could keep the same number of employees throughout the year.

This is important in a small operation in a small town as opposed to large fleets in the metropolitan centers. Steady year-around work under good conditions is important to keep the best type of mechanics. There are also many advantages in having a small labor turnover. The men get used to conditions, become more familiar with the work, and turn out more and better work under such conditions with a minimum of effort.

Schedule Limitations

UNDER normal conditions, and operating under peace-time laws, we cannot load before 6 o'clock in



Drawing from blueprint of the new shop. Shop is 100 ft. x 47 ft. and is equipped to do all types of overhaul and repair. Notice arrangement of lifts, benches and machines for smooth flow of trucks in and out. Below. One of the fleet's eight petroleum tank trailers and tractors

the morning or unload after 8 o'clock at night.

As a consequence schedules have to be planned for leaving our shop and arriving at loading terminals and unloading terminals so that drivers will not be held over in terminals all night to unload or arrive at loading terminals too early to load.

Some of our units leave our shop at midnight to arrive at loading terminals after 6 o'clock. After loading they must arrive at their destination before 8 o'clock.

Since the loading and unloading times are known factors, we try to arrange our schedules in the shop so that we can give all the units a steady maintenance diet. This makes 24-hour shop operation necessary and much of the tune-up and inspection work is done between noon and midnight; that being a period when we can get to the units.

Adequate lighting was installed by using fluorescent fixtures throughout and with an especially high level of

light along the side of the shop where the portable benches are. On this side, too, we have all windows which gives us a maximum of daylight when available.

Unencumbered Work Flow

UNDER the heading of accessibility it has always seemed to me that if you can cut down a lot of see-sawing and motor racing in getting your units in and out of the shop that you could save a lot of wear and tear on the equipment, to say nothing of promoting economy in tempers and human energy. Just because a skilled truck driver can turn his outfit on a



"dime," is no reason why it should be done. In a year's time, unnecessary jockeying in the shop costs considerable money—money that goes down the proverbial drain to nowhere.

I bought a site on which I could erect a building and into which I could drive in at the front, get any service I wanted from mechanical to greasing, and then roll freely out at the back.

The front has an entrance for trucks and trailers using a 12x12-ft. overhead door. The back of the building has three doors of this size
(TURN TO PAGE 116, PLEASE)

CCJ CUSTOM BODY SERIES



DESIGN NO. 1—VAN BODY

All Material Copyrighted by E. M. Westberg, 1946

by E. M. WESTBERG
Body Designer

In the July issue, Commercial Car Journal resumed a reader service—the improvement of vocational truck body design—which fleet operators can put to profitable use. The design shown and described on these pages, for example, has considerable eye appeal but even casual inspection will reveal several efficiency features not contained in bodies of older design for this type of service.

The designer, well-known among eastern truck and body builders, is no stranger to CCJ readers. Before the war he designed numerous bodies exclusively for Commercial Car Journal readers. Besides designing bodies, he has worked in body shops and knows the practical problems of body building. His experience, therefore, is an assurance that the designs not only will have eye appeal but be practical.

Operators are reminded that these designs are copyrighted. Arrangements can be made, however, with the designer for procuring detailed construction drawings and consultation on specific problems. If such drawings are desired, write to Editor, Commercial Car Journal, 56th and Chestnut Sts., Phila. 39, Pa.

Next month's Custom Body design will be a light panel delivery.

Here's No. 1 in CCJ's new postwar body designs intended to show what can be done to up van efficiency, appearance and payload

To insure a custom design for your vocation, be sure to mail answers to questionnaire on page 43, June CCJ



E. M. WESTBERG

THIS, the first design of the new series, is a streamlined van body, the size of which could vary from 14 to 18 ft. in length by 6 ft., 6 in. inside height by 7 ft. inside width.

It is directed to the particular attention of furniture dealers, interior decorators, antique dealers, moving and warehouse establishments, department stores, office equipment dealers, container manufacturers, insulation contractors, upholsterers, rug cleaners, radio and electric appliance manufacturers, wholesalers of paper bags and twine, groceries, clothing, drugs—in fact, it is adaptable to the needs

of most manufacturers of large, bulky and not too heavy commodities as well as to the wholesalers of such products.

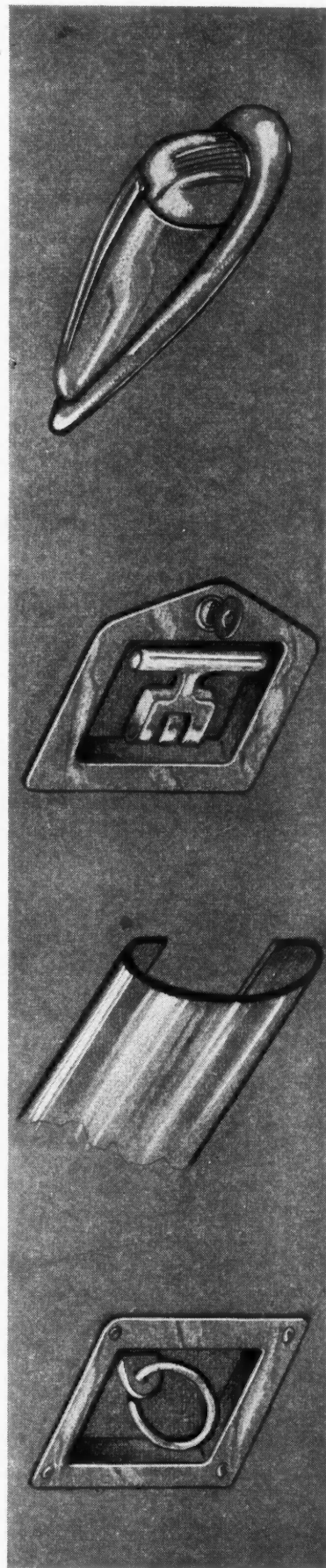
The purpose has been to effect as pleasing and modern-looking design as possible with a minimum of radical lines and fabrication problems, bearing in mind at all times initial cost of building single units and the possibility of economical quantity production.

Standard chassis are to be utilized, of course. Certain special sheet metal parts, such as the fenders, to be obtained by making alterations to existing or available parts.

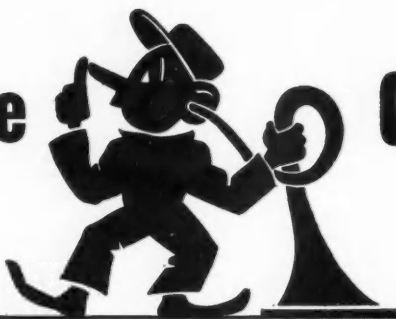
The design is based on, and was developed by, a careful and studied application (TURN TO PAGE 178, PLEASE)

★ CCJ CUSTOM BODY SERIES

Hardware details on body above. At left is a flush type tie-down ring; next illustration shows a smooth, prefabricated steel slat for tie-down purposes; next, one of a number of available flush-lock type door handles; last, streamlined marker light



EARS to the GROUND



Pre-Fab Panels

Our sleuth in charge of the light-weight-metals department came up with two important items pertaining to aluminum. First, we are informed that a large producer has definite plans afoot for marketing standardized pre-fabricated aluminum body panels. By utilizing various combinations of the standard units some 100 different types of truck and trailer bodies may be manufactured with a minimum of confusion. Good news for fleetmen and small body shops is the fact that this producer's plans also include a nation-wide distributor setup which should make the units readily obtainable when available.

... and an Axle

The second item from the same dopestier indicates that a large axle manufacturer is currently experimenting with aluminum axles for both trucks and trailers. The complete axle, including the brake assembly, will be cast of aluminum although spindles and brake drums will be of conventional materials. A method of swedging and welding the steel spindle to the aluminum structure has been devised. Tests indicate a substantial saving in weight at no sacrifice of strength or life. This department has been assured a ringside seat when further news is forthcoming.

New Oil Filter Entry

At the plant of a well-known shop equipment producer hitherto unconcerned with accessory items, our scout uncovered plans for a new oil filter. Details are expected to make our "New Products" Department in an early issue.

Suspension Unlimited

There has been much talk of late about advanced engineering to improve the ride for both driver and load, but even so, it came as a distinct surprise to us to learn that a prominent parts manufacturer is experimenting with completely independent suspension for all four wheels on heavy-duty vehicles. Yes, that's what the man said! We would like to mention exactly what type suspension it is, but if we did you would recognize the manufacturer and we are not at liberty to reveal his name at this writing.

A Peep at New Jeep

That new version of the Willys Jeep which has been hiding behind veiled pos-

ters is to be a 1-ton truck. Tentative plans call for its manufacture in both two- and four-wheel drive models. Production is expected to start rolling sometime in the fall.

Sparks in the Wind

Our hot-shot reporter who specializes on ignition and electrical systems uncovered these electrically juicy tid-bits: A well-known maker of ignition items is working on (1) a 140-amp. heavy-duty generator with high and low performance and with capacity to take care of every foreseeable fleet requirement; ready in about a year; (2) a new oil-filled, waterproof ignition coil coming soon as standard equipment for passenger cars; (3) a new super-duper battery—no details at the moment.

Look! No Parts!

Picture an automobile—or even a truck for that matter—without clutch, transmission, universal shafts, propeller shaft and differential and you get a quick idea of what Superdrainic Corp. is super-dreaming up. Replacing all this paraphernalia is a 40 h.p. hydraulic pump, directly coupled to the engine, plus small hydraulic motors installed in each wheel, an oil reservoir and an oil-cooling radiator. The first experimental model uses only one motor and retains the propeller shaft and rear end, but a job with the individual wheel motors is coming up. Among the obvious advantages are infinitely variable speed, full engine power for acceleration and a lot less

maintenance headaches. The system instantly reverses to provide braking, said to be adequate for all but full stops and emergencies.

Diesel Developments

From one of the industry's biggest comes word of a new truck specifically engineered for housing a heavy-duty diesel engine. And from the same source, though not necessarily the same producer, mind you, we learned that a lot of engineering talent is being expended on an all-aluminum diesel engine. Weight reduction in the six-cylinder model will be almost 500 lb.

Dodge Preview

Full details of the long-awaited heavy-duty Dodge truck models are scheduled for the August issue. A preview extended to our Detroit technician produced the following hitherto unpublished data: There will be three models, each in five wheel-base ranges; a 2½-tonner rated at 18,000 lb. g.v.w., a 3-tonner rated at 20,000 lb. g.v.w. and a 3-ton heavy rated at 23,000 lb. g.v.w. The two 6-cyl. engines, new versions of the heavy-duty models used in military equipment, will have a bore and stroke of 3¼ x 4¼ in. and 3¼ x 5 in. respectively. Exhaust valves are sodium-cooled and Stellite-faced, operate in Stellite-faced inserts. Intake valves are of Silchrome with Silchrome inserts. Main and con-rod bearings are of so-called "multiple-layer" type, precision steel backed with a matrix of copper-lead and a layer of lead-tin alloy. The Timken "3 for 1 Related Design" rear axle provides interchangeability for the three basic types of final drive. Booster actuated hydraulic brakes are standard.

Gasoline Injector

Our Detroit operative wound up the month's ventures with full details of the new fuel injection system developed by Ex-Cell-O Corp. Unfortunately it is limited at the moment to application on Continental aircraft engines, so we are shelving our technical data for the time being. But the important thing is that it works and works well. Furthermore, extensive testing in the truck engine field is expected to get under way soon. When it does we'll let you know. Meanwhile, truckmen must be content with speculation on the claimed advantages which, aside from strictly air-born improvements, include improved acceleration, better gasoline economy, uniform distribution to all cylinders and reduction in cylinder head temperatures.



"Darling, this is Mr. Simms. He was caught between a fixed price ceiling and a rising cost floor."



H. L. Willett, Jr., at the dispatcher's unit of the radiophone



A Willett driver gets his orders over the two-way radiophone

Willett Installs Two-Way Radio Telephones

TO PERMIT a thorough test of the practical value of two-way radio telephones for use in their trucking operations in the Chicago area, The Willett Co. already has installed such equipment on five units. These include four tractors and a unit used for airfield pickup and delivery service.

The equipment being used is Raytheon Radiophones, operated on an experimental frequency wave band assigned by the Federal Communications Commission. The radio equipment is powered for best service within a radius of 20 to 30 miles from the dispatching headquarters at the main Willett office near the commercial center of the city. If so desired at a later date, the radio communication area may be easily expanded through the setting up of supplementary dispatching centers within a radius of 25 to 30 miles.

The necessary receiving-transmitting equipment occupies a space of about 20 x 30 in., is about 10 in. high and weighs about 100 lb. For the installation of such sets in the four tractor cabs, it was found best to utilize about one-third of the width of the driver's seat, through the simple process of shortening the length of the seat springs and cushions. For installation in the airfield pick-up and

Five vehicles now equipped and experiments are being confined to 30-mile radius from headquarters. Outlook good despite "bugs"

by RANDALL R. HOWARD

delivery truck, space just behind the driver's seat was utilized.

Engine vibration apparently does not interfere with the operating efficiency; and the antennas needed for outside reception differ little from such needs for tractor radios, excepting for a little added stiffness and tallness.

Still in Experimental Stage

THE company is still experimenting as to the best kind of signal to attract the attention of the driver when he is receiving a message. Either a buzzer or a bell could be used; but it is probable that some form of gong or loud-speaker type of

signal will be permanently installed, as being more practical if the driver should happen to be a short distance away—maybe engaged in loading or other operating activities.

In the present experimental stages in the use of such radio transmission, all five drivers of the attuned trucking units hear the same dispatched call signals through a loud-speaker. Only the driver being called responds. However, it is stated that it will be possible, when the company so desires, to have, at the dispatcher's desk, a switchboard which will permit the exclusive dialing of any selected individual driver.

(TURN TO PAGE 87, PLEASE)



PUBLICATIONS

USE THE POSTCARD—NO STAMP NEEDED

A selected list of the latest in literature—books, pamphlets, catalogs—chosen to help fleet operators solve maintenance and operating problems. Use free postcard.

L56. Engine Overhaul Manual

Here is one of the most outstanding publications we have offered in this department for some time. It is a 96-page booklet on engine overhauling procedures prepared for, and addressed to, the service man.

The booklet is divided into several departments, all valuable for their specific information on installation of piston rings and related procedures.

The introduction consists of a list of definitions of overhaul terms and a complete nomenclature list for piston rings. A comprehensive chapter on How to Diagnose a Case of Excessive Oil Consumption heads the text. Detailed photographs and drawings show even the inexperienced mechanic how to install a set of piston rings correctly.

Special instructions cover peculiarities of individual engines with respect to oil pressure regulation, high oil consumption, oil leaks, oil pan adjustment, oil distribution, etc. Several pages are devoted to the procedures for re-ringing and re-sleeving Ford, Mercury and Ford tractor engines.

A two-page chart lists manufacturer's recommendations for proper torques of cylinder head, con-rod, main bearing and manifold bolts for all popular makes of cars and trucks. The last part of the booklet presents a story of piston rings, giving a history of the development and showing pictorially how they function.

This booklet is far from elementary in the approach to an important phase of engine overhaul. Mechanics and fleet operators will find it both interesting and educational. Write L56 on the free postcard and secure it for your files.

L57. Truck Tire Booklet

"Truck Tire Failures and How to Prevent Them" is the title of this handy little

8 x 6-in. booklet now available to the fleet field. Numbering 34 pages, this publication is arranged so that it can be set up on the desk or placed on its own stand to bring its own message to the driver or service man. Each page has a clear, attractive illustration showing tire abuse or a tire failure—or a preventive maintenance tip printed in large boldface type.

The booklet lists seven causes of overload, which are not related to gross or axle load. Preventive measures for overload, underinflation, and overinflation are presented along with photographs illustrating the effect on tires.

Many other causes of premature tire wear are given separate and comprehensive treatment in the same manner. The last chart is a load and inflation table for nearly every size and type of truck tire.

This booklet is novel in its physical make-up and factual in its approach to tire maintenance. Every fleetman should have one set up on his desk, so that he can develop more tire-care-conscious drivers and service men. Write L57 on the free postcard for a copy.

L58. Spark Plug Guide

Mechanics and fleet operators will find this 11 x 29-in. wall chart, "Power Guide for Spark Plugs," an extremely useful reference to have hanging over the work bench.

Featured on this power guide are nine photographs of plugs, showing graphically hot and cold-firing plugs in various stages of burning or fouling as well as correct-firing plugs in the correct heat range. By studying these illustrations the mechanic can tell at a glance the trouble with spark plugs he has removed from an engine.

The guide also contains a recommendation chart for various makes of cars, trucks and tractors. Six pages prepared in calendar form provide a handy chart for

checking gap settings, heat ranges and model numbers.

This guide is yours free for the writing of L58 on the postcard.

L59. Differential Manual

A 32-page manual on the new Thornton automatic-locking differential is now ready for the fleetman. The new traction device is interchangeable with the conventional differential assembly and is said to give maximum traction with a minimum of expense, according to the manufacturer.

This operation and maintenance manual is combined with a service and parts list along with a price list. Illustrations cover all parts of the assembly and show the construction of each assembly.

Detailed instructions cover installation, lubrication and maintenance. A list of service notes and driving suggestions completes the text. Write L59 on the free postcard and secure a copy of this manual for your files.

L60. Refrigeration Catalog

A new 12-page folder listing hold-over plates for refrigerated truck bodies has been issued by a well-known refrigerating company for the convenience of the fleetman.

Included in the folder are detailed instructions on how to compute and install truck plates. Layouts of truck bodies show typical truck plate arrangements for low temperature and high temperature layouts and for small trucks. A detailed drawing shows installation details for horizontal mounting and for vertical mounting of the plates. Directions are given for determining the proper size compressor for use with vacuum plates and for determining insulation thickness. A table of heat leak values on cork board is included.

Write L60 on the opposite postcard for a copy of this catalog.

PRODUCTS



USE THE POSTCARD—NO STAMP NEEDED

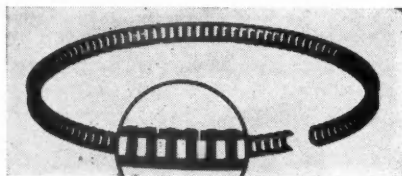
The newest in replacement parts, accessories, shop equipment and supplies. For more details of products described or advertised on these pages, use the accompanying free postcard.

P338. Oil Control Rings

A new oil control piston ring has been announced by Thompson Products, Inc. The new ring is designated U-Flex, which is derived from the U-shape of the segments which constitute its structure, and the flexibility characteristic of the ring.

A companion ring, the Z-Flex, possesses features similar to those of the U-Flex, particularly in uniformity of radial wall pressure and in the control of oil.

The U-Flex is made of heat treated high carbon steel. Of simple, one-piece construction, it is designed to fit any piston without need for shims or expanders, and is interchangeable with any other oil ring.



It features two rails, each composed of a number of U-segments. Each of the U-segments is separated from adjacent segments in the same rail by small gaps. Each of the U-segments is connected to two corresponding U-segments in the opposite rail.

When the ring is compressed to bore size, the segments are squeezed together, narrowing the gaps from approximately 0.008 to 0.001 in. Under this compression, each crossover acts like a coil of a spring, forcing the segments apart and against the cylinder wall.

Uniformity of wall pressure over its entire periphery is an inherent characteristic of the U-Flex. Because each crossover is identical to the next and has, as a consequence, the same spring rate, the pressure which each U-segment exerts against the cylinder wall is the same. It is said that through uniform wall pressure superior oil control is maintained, and bore wear is held to a minimum.

Use Free Postcard For More Details.

P339. Improved Reflector Flares

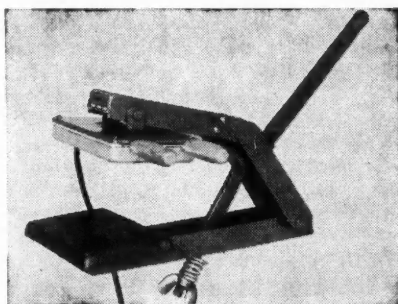
Additional protection for truck and bus operators has been provided in the newly designed reflector flares of the Grote Mfg. Co. of Bellevue, Ky.

An improved Groteflex plastic, used in the flares, now makes them clearly visible at distances of 2500 ft. or more in both directions, according to the company. These plastic flares meet full requirements of I.C.C. and state highway department safety engineers.

Use Free Postcard For More Details.

P340. Tube Vulcanizer

The Tru-Cure tube plate for tire repair is a new product developed by the Lewis Equipment and Supply Co., Inc., Denver, Col. A lever locking mechanism locks the tube firmly between the electrically heated plate and an air bag which can be inflated to correct pressure for proper vulcanizing.



The heating plate is thermostatically controlled and provides 45 sq in. of curing surface. As the heater is on top rather than below the work, the tube can be centered in full view of the operator.

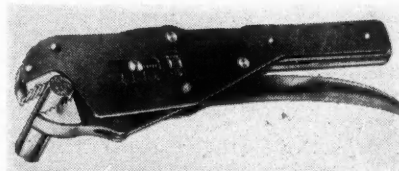
With the exception of the heating plate which is of machined aluminum, the equipment is constructed throughout of welded steel and is thus able to stand up to the strain of heavy use, according to the manufacturer.

Use Free Postcard For More Details.

P341. Adjustable Lock Wrench

The BMC precision pressure locking wrench made by the BMC Mfg. Co., Binghamton, N. Y., is said to be a versatile all-purpose tool with a gripping power up to one ton. It is used as a small vise, an adjustable pipe wrench, a locking clamp, a toggle clamp or ratchet-action pliers.

A calibrated scale and indicator shows proper position for jaw opening from 1/4 to 3/4 in.



The steel jaws of this tool are parallel at any opening to provide maximum gripping surface. Only one hand is required to adjust wrench, grip the work or release the wrench. Once locked, the wrench is secured to the work until it is released by moving the lever away from the handle.

Model 7, with the 3/4-in. jaw opening retails at \$2.75. Model 9 sells for \$3.50.

Use Free Postcard For More Details.

P342. Non-Slip Floor Covering

Production of Griptred, a non-slip safety flooring and protective covering material for metal, wood and concrete, has been converted to peacetime commercial uses by the Chemical Products Division of The Goodyear Tire & Rubber Co.

This combination abrasive aggregate and plastic binder is considered ideal for any surfaces where safety under foot is needed.

Griptred comes in a choice of six colors. The special abrasive aggregate will withstand crush loads in excess of 7000 lb. per sq. in. The material may be applied by trowel, spray gun, or brush.

Use Free Postcard For More Details.
(TURN TO NEXT PAGE, PLEASE)



PRODUCTS

USE THE POSTCARD—NO STAMP NEEDED

(Continued from page 59)

P343. Larger Capacity Battery

An improved automotive battery with oversize electrical capacity, but adaptable to conventional size battery cradles, has been developed by The Electric Auto-Lite Co.

The newly developed battery has a capacity for three times as much water, when water is needed, as is contained in the ordinary battery. This additional water space means that the battery need be watered only one-third as often as the conventional battery and the milder average strength of acid which results from the extra water is favorable to a longer life for the battery.

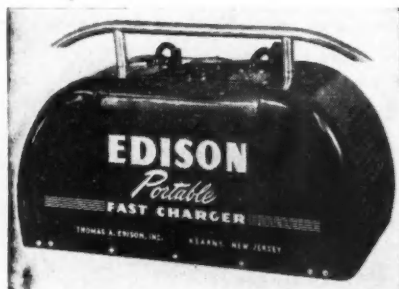
The battery is built in a durable hard rubber container and utilizes fibre-glass insulation which prevents loss of valuable power-producing active material from the plates, thus contributing to trouble-free service life under adverse operating conditions, according to the manufacturer.

Use Free Postcard For More Details.

P344. Portable, Fast Charger

Thomas A. Edison, Inc., Kearney, N. J., announces a new fast battery charger designed for automotive, farm, construction and marine use.

Weighing only 43 lb., it is light enough for one man to carry. Simple, compact design, plus the use of 16-gage die-stamped aluminum for the housing, 1/8-in. aluminum for the chassis base, a glass-insulated transformer and a selenium rectifier, give the unit its desirable portability.



The charger is designed to deliver 80 amperes to a 6-volt battery. It will operate satisfactorily on 105- to 125-volt, 60-cycle, single-phase alternating current.

Use Free Postcard For More Details.

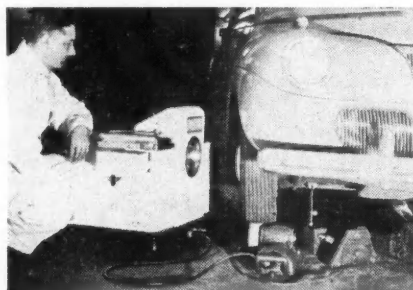
P345. Electronic Wheel Balancer

An electronic wheel balancer for one-man operation, with which the operator

can determine and correct both kinetic (static) and dynamic unbalance—without removing the wheels from the vehicle and at an average time of less than ten minutes per wheel—has been announced by Stewart-Warner Corp., Chicago.

Three features make possible the rapid attainment of both kinetic and dynamic balance. A magnetic pickup unit transmits current impulses to a meter calibrated to transpose the vibrations into a dial reading indicating the degree of unbalance in the wheel. It also actuates an electronic assembly similar to a small radio set.

A stroboscopic light shows the operator the exact spot at which the wheel is out of balance and opposite which corrective weights must be placed to bring it into balance.



The electronic assembly of the balancer, including the stroboscopic light, is enclosed in a portable, cast-iron cabinet 26 in. high; 30 in. wide, and 20 in. from front to back. The cabinet has baked enamel finish, with polished steel top and stainless steel trim. The wheel spinner and pickup unit, and an assortment of corrective weights and the single tool required to apply them, are kept in the cabinet when not in use. The device operates from a single 110 v., AC electric plug-in.

Use Free Postcard For More Details.

P346. Steam Cleaning Detergent

A new heavy-duty alkaline-type detergent specially designed for use in modern steam guns and coil-type steam-generating mechanisms has been announced by Oakite Products, Inc., of New York, N. Y.

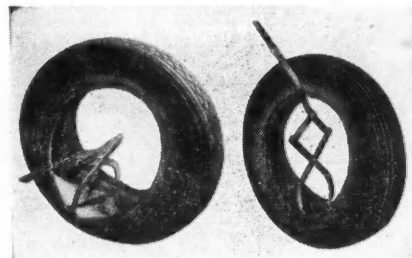
The new high-speed detergent, called Oakite Composition No. 92, has been pre-tested during the past year in maintenance and overhaul shops of bus and truck fleets, in garages and repair shops. Reduction in time and cost allocations for such jobs as the following are said to have been recorded: Removing heavy mineral greases,

oil, asphaltic soil, tar, and carbonized deposits from all types of motors, rear-end housing, transmissions, differentials, engine blocks, truck trailers, tractors, etc.

Use Free Postcard For More Details.

P347. Portable Tire Spreader

A portable tire spreader, developed by the Eells Mfg. Co., Willow Grove, Pa., is said to be one of the handiest tools available for the spreading of tires of all sizes for inspection and repairs.



With two adjustments, one for 450 to 550 tires with a 7-in. opening, and one for 600 and larger tires with a 10-in. opening, the new tool is adaptable for truck, passenger car or special size mountings.

A feature of the tool is its light weight and simplicity. Weighing only 4 lb., it is claimed that the tool will do the same job as higher priced machines.

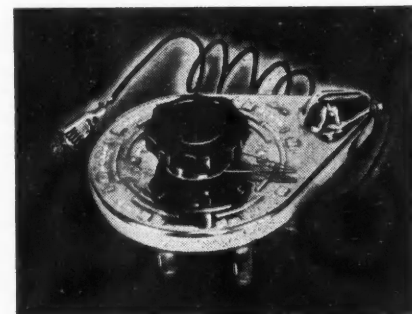
The tool consists of a series of levers with an operating handle that is applied with hand pressure. The jaws are placed between the beads of the tire, and when the handle is depressed, the device locks the beads apart, so that repairs can be easily and quickly made.

Price of the Model No. 710 spreader is given at \$3.95. Orders can be filled at the factory at once.

Use Free Postcard For More Details.

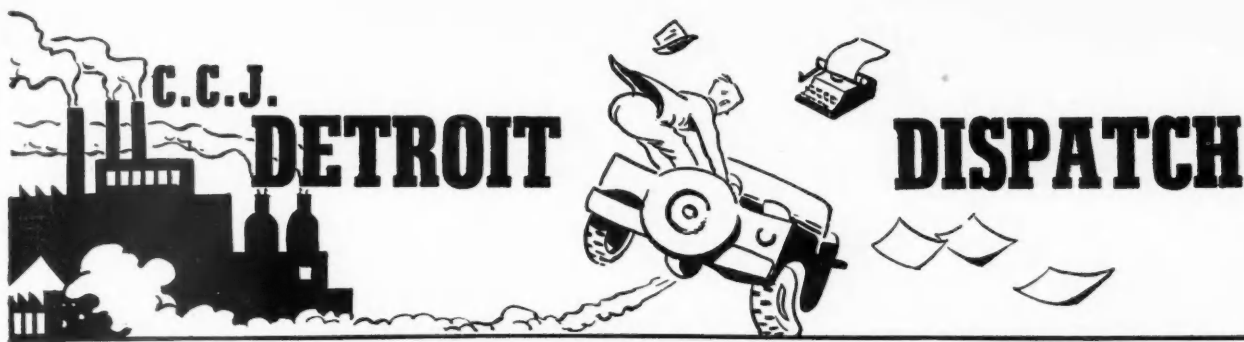
P348. Distributor Tester

Kem Mfg. Co., Inc., New York, announces the Kem Distributor Tester which fills the need for a single instrument that will time the distributors of all Ford V-8, Mercury, Lincoln and Lincoln-Zephyr cars.



The tester is portable. It is precisely machined so that it indicates the firing points accurately. Distributors are simply mounted in a vise and the tester is slipped on to position. Raised letters and other unmistakable markings show the exact location where contact should be made. The tester uses only low voltage direct current to supply a signal light.

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Truck Production Prospects Brighten . . . Ford Over 1000 a Day . . . Chevrolet Boosting Schedules . . . Upward Trend in Prices Forecast . . . Rate Increase Expected . . . Natural Rubber for Car Tires?

Price Problem Minus OPA

With OPA officially dead at midnight, June 30, a quick spot-check among truck manufacturers in Detroit on July 1 to determine what course they intended to follow on truck price increases netted no official comment, but did result in unofficial opinions that, for the time being at least, the manufacturers were going to await further clarification of the situation before raising prices. The general consensus was that it would be bad policy to increase prices immediately and then have to back-track if OPA should be revived in its previous form, even temporarily, or if new price controls should be enacted.

Dealers May "Pack" Prices

One spokesman said that it would be very bad public relations to increase prices immediately after OPA's death, since it might bring heavy pressure on Congress for new price control legislation, and would cause confusion twice confounded if price controls had to be restored. Another said that although the manufacturers might not raise prices, a small number of dealers might take advantage of the situation by raising prices through "packs" and other charges they could not make under OPA. The National Automobile Dealers Assn. on June 30 appealed to its members to hold prices at previous ceilings until the fate of OPA is settled definitely.

Rise to Level Asked

One truck company spokesman predicted that in the event no price controls are restored, most truck manufacturers would raise prices to the level they had asked OPA to approve under the recent truck pricing order, since those prices would reflect increases in wages and the cost of materials. He added, however, that there was little chance of prices getting very far out of line since competition would quickly restore balance to the situation.

Production Prospects Brighten

For the first time in several weeks we can report that truck production prospects

by LEN WESTRATE

CCJ Detroit News Editor

look brighter in Detroit than they have at any time since the first wave of strikes hit the automobile industry. There still were some manufacturers down with labor trouble at the end of June, but the major companies, the ones that really put the hump in production totals, are now in motion and gaining speed. Production experts who have had some pretty sour predictions for months, now say that they can see a definite improvement in the supply of parts and are predicting that July will be a record production month for both cars and trucks. The wave of supplier strikes, which has kept assembly lines stuttering, is slowly but surely subsiding.

Ford Over 1000 a Day

Ford got back into production June 24 after being idle since the middle of May because of strikes in supplier plants. Output of trucks the first week after production resumed was around 300 a day, but this is being stepped up rapidly. Ford had reached a point of 1000 trucks a day in April and this rate will be far exceeded by August under present schedules. In fact, it now looks as though the company, because of a more favorable price policy on trucks may devote a larger percentage of its productive effort on trucks in relation to passenger cars than it did previously.

Chevrolet Boosting Schedules

Chevrolet Division of General Motors was knocking out between 900 and 1000 trucks a day at the end of May and schedules were expected to be increased in July. The other G. M. truck building division, GMC Truck, finally got going again the last week in June after being closed for seven weeks by the Houdaille-Hershey strike. This division has operated only four weeks this year, and consequently has not made much of a dent in produc-

tion figures. The national G. M. strike kept it down the first three months, and the Houdaille shutdown hit about the first of May. However, GMC has had a chance to build up good inventories of other parts and should be ready to turn out a heavy volume of trucks from here on in. White, Mack and Diamond T, on the other hand, still were strike bound at the end of May. So, while some strikes in both truck manufacturing and parts plants still are in progress, the number is dropping and the net effect among the large volume producers is that more trucks will be rolling out this month.

Upward Price Trend Forecast

The first indication of the way truck prices will go under the new truck pricing order comes in an announcement that Federal Motor Truck Co. has received increases in ceiling on three models. The company had previously been granted hardship increases, but the latest boosts take into account the 18½ cents an hour raises in the company's and parts suppliers' plants. The full increase is not passed on to the buyer, since dealers are required to absorb part of the cost through a reduction in discount amounting to 4½ per cent. However, it now appears that with the Crawford amendment sure to be left in the OPA bill, such cost absorption will be prohibited and truck and passenger car buyers will be forced to pay the full amount of the increases granted to manufacturers. Although the Federal price increase is only one case, it seems likely that other companies also will get price relief. It is true, of course, that truck prices were raised during the war to compensate for low volume and there was some chance before the present wave of wage increases that prices might remain the same or even come down. That is not likely to happen now in view of greatly increased wage costs to both vehicle manufacturers and parts suppliers. The average increase to Federal on the three models is said to average about 15 per cent over the 1942 list price and about 3 per cent above the

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Operators Give Engineers Ideas

Body, Engine and Chassis Improvements



**Design features which local truck operators
would like incorporated in their new trucks**

by W. D. BIXBY . . . R. M. WERNER and H. H. EARL
United Parcel Service



Willard D. Bixby

THIS is not an attempt to tell manufacturers how to build a truck. The intent is simply to call attention to desirable features which operators, engaged in local trucking and delivery service, would like to have incorporated in future truck design.

Comfort, Efficiency, Safety

CAB DOORS: First-class collapsible side doors, such as used on most busses, should be standard equipment on truck cabs. This type of door, when properly installed,

permits a driver to lean out of the cab when backing up, without having to keep his mind on the risk of a half open door striking another truck or other obstruction as is the case where hinged doors are used. Of course, ventilation is a problem in cabs with bus-type doors and must be provided for in the roof or cowl as regulated windows cannot be installed satisfactorily.

ACCESS: Easy access to cab from road should be provided. Care must be taken to install substantial steps of ample size covered with effective non-skid material. Small openings into which a driver places his foot and in many cases strikes his shin against the edge of the floor are to be avoided. If any floor edges or other obstructions protrude over the foot step, a stop should be installed to prevent a man's foot from going so far in that his shin contacts the floor or obstruction.

Easy access to either right or left side of the cab from the driver's seat is desirable. It is helpful if parking brake and gear shift lever are mounted well forward. To secure such mounting remote control of the transmission is essential in the c.o.e. type chassis. Dog house over engine should be eliminated by installing the engine as low as possible in the chassis and mounting the cab at a height sufficient to clear the top of the engine. Regardless of the relative efficiency of up and downdraft carburetors, all engines to be used in cab-over-engine models should be available with updraft manifolds. Such a manifold reduces the overall height of the powerplant, thus sim-

(TURN TO PAGE 154, PLEASE)

for Truck Improvements*



* Excerpted from papers presented at SAE Summer Meeting.



J. L. S. Snead, Jr.

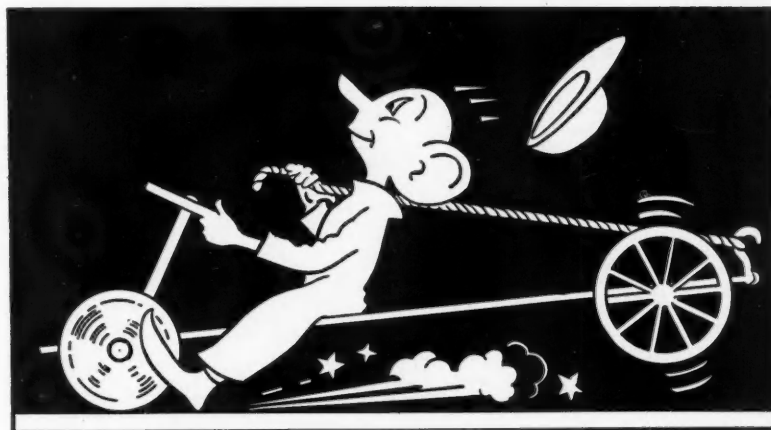
TRUCKS and trailers designed for intercity service in the western states should be designed to operate an average of 100,000 miles per year

for a period of 10 yrs.

In most western states truck and full trailer combinations are limited to an overall length of 60 ft., semi-trailer bodies to 35 ft. and gross weight to about 72,000 lb. State weight restrictions put a high premium on reduction in vehicle weight, with resultant increase in net load. State length restrictions put a high premium on increased loading space for carriers whose cargo consists mainly of bulky commodities. In the larger fleets, operation of each vehicle by several drivers makes simplicity of operation and sturdy construction essential. The long distances, lack of parts stocks, adequately equipped shops and trained mechanical personnel for maintenance of heavy equipment except in large centers or where maintained by carriers make standardization of equipment and interchangeability of parts particularly desirable.

Considerable progress has been made by many western carriers in the reduction of unladen weight by the use of aluminum, and other light metals, and by the use of alloy and heat-treated steels. Use of such materials necessitates careful training of mechanical personnel because of the special treatment required in assembly and repair of parts and units in which such materials are used. There is a broad field for additional weight reductions, and the rising costs of labor and materials are increasing pressure for them in the

Weight Reduction Better Brakes



**State weight-length limits place high premium
on dead weight; better brakes, control needed**

by J. L. S. SNEAD, JR.
Consolidated Freightways, Inc.

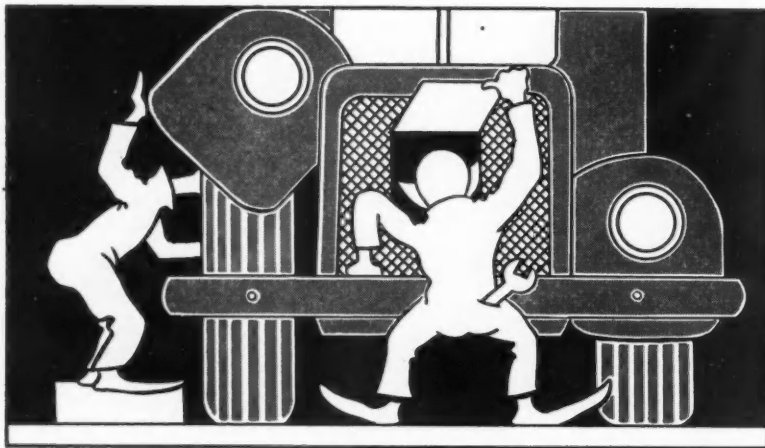
western states. Many vehicles now have aluminum hubs, brake shoes, brake anchor brackets, brake shields, brake cam and diaphragm brackets, axle housings, transmission cases, spring hanger brackets, spring shackles, torque arms, torque arm brackets,

clutch housings, flywheel housings, transmission covers, motor supports, trailer fifth wheels, cabs, bodies and frames. The use of light metals for front axle beams, steering gear housings, upper and lower crankcase as-

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Operators Give Engineers Ideas*...

Simplified Inspection and Maintenance



Some standardization needed, better spark timing and other aids needed to speed PM checks

by HARRY F. CHADDICK

American Transportation Co.



Harry F. Chaddick

There is little possibility that any carrier can, at any time, have only one make and model of equipment. However, there seems to be little reason why we should have variety of dash arrangements, or a variety of transmission shifting patterns or a difference in clutch pedal pressures or brake pedal pressures between various makes and models of trucks.

Surely, a uniform arrangement of all instruments on the dash so that they would always read in the same order from left to right would not hinder any designer's ingenuity in regard to the instruments themselves. Such a standardization would remove one of the distractions which the driver encounters when transferring from one piece of equipment to another.

The same idea holds true of transmission shifting patterns, and the job is even worse when auxiliary transmissions or two-speed rear axles are concerned. There seems to be no

good reason why the clutch pedal on one truck should require any more force or require any more travel than on another make or vehicle. The same condition holds true of the brake pedal. Steering wheels should be the same size, and their location with relation to the left front corner of the windshield should be uniform.

I understand that there are more than a thousand different sizes of brake blocks and brake linings for commercial vehicles. Some of these vary by only fractions of inches in width, length, or radii. I think it is rather unnecessary to vary heavy-duty brake dimensions by amounts as little as a 16th or an 8th of an inch. A dozen sizes of brake linings should take care of all commercial vehicles, trucks, tractors, and trailers. Our stockroom problem would certainly reduce itself.

The failure of heating and ventilating has been the cause of many wrecks on the highway. Night operation is somewhat difficult. In the winter time, if this condition is coupled with a closed cab which permits some leakage of engine fumes into the cab, at the very least, we produce a slowing up of the driver's faculties and reactions. Better arrangements must be made for sealing the floor boards around the pedals. In addition, I think that the heating equipment should be built into the cab so that fresh air can be brought into the heater and then be pumped into the cab, so that when the cab is under pressure and when the windows are closed, the air could pass out through designed vents or through holes and leaks in the floor boards. Only in this way can we expect to keep fumes out of the driver's cab.

There is one additional instrument

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* Excerpted from papers presented at SAE Summer Meeting.



Ted V. Rodgers

IF THE trucking industry's future is to be as great or even greater than its past, it must be able to reduce costs for maintenance and operation of its operating equipment in order to stay in business and serve the shippers of the nation.

The trucking industry appeals to commercial vehicle manufacturers for assistance. It is willing to dispense with do-dads if the cost of the original piece of equipment can be reduced. We want maintenance simplified as much as possible. By reduction in cost and maintenance I am not alluding to cheaper parts for replacement purposes or quick-change units that can be removed and replaced in what appears to be economic maintenance.

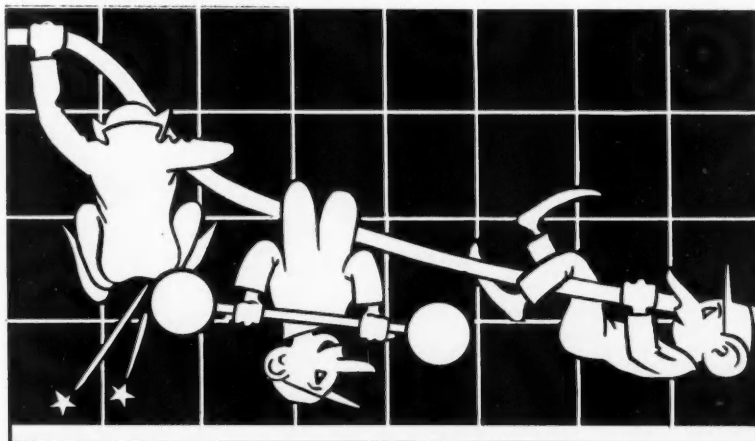
In so far as the trucking industry is concerned, the cost of a vehicle out of service may be far more than the cost of repair work. In these boom times, most maintenance and repair work must be accomplished in the day time, because of the fact that mechanics do not like to work at night; consequently, time in the shop is definitely a loss of productive hours.

Simplified Trailer Maintenance

THE ideal trailer would be one on which there were only three lubrication points, and some method provided for determining the amount of brake lining remaining without removing the wheels. The three lubrication points are the wheel bearings and the fifth wheel plate. The wheel bearings should require packing only when it is necessary to reline the brakes.

Relineing the brakes should really be the criterion to determine when a semi-trailer should be shopped for

Emphasis on Low-Cost Maintenance



Industry's future depends on low-cost operation. Simplified maintenance is the solution

by TED V. RODGERS

President, American Trucking Associations, Inc.

maintenance work. We don't need to worry too much about greasing the fifth wheel. The driver generally takes care of that because a dry fifth wheel interferes seriously with his steering of the vehicle.

I believe it is possible to have semi-trailers which will run safely and efficiently, and not require any sort of mechanical service except when the brake lining needs replacing. In order to use brake lining as a guide for maintenance, it is highly essential that some method, either peep holes or some type of gage, be provided so that the thickness of the brake lining that remains can be determined with-

out removing the wheel, and while the vehicle is under load.

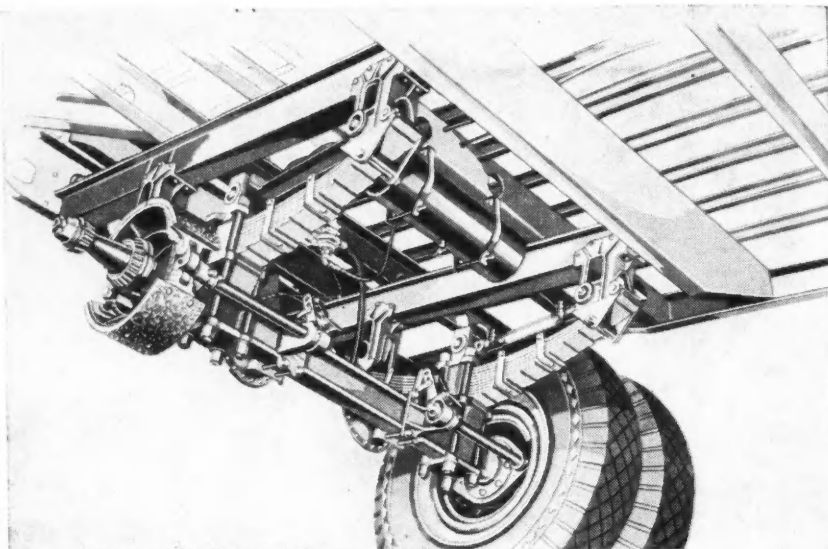
All the rest of the brake mechanism on the vehicle should be so designed and installed so that it will operate without service for the life of the lining. In fact, installation of brake equipment is equally as important as design, particularly with air or vacuum type brakes because poor installation and poor plumbing can cause bad operation of the brakes.

If brake mechanism cannot be designed to remain operative for this period of time, then quick means for

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Interior of Aerovan trailer body showing use of corrugated aluminum panel linings



The new "multi-rate" suspension system, showing arrangement of radius rods and roller on which the top spring leaf slides when load is light

Fruehaufs Feature New Suspension, Reefer Package

Spring flexibility is automatically adjusted to load. Aluminum panels reduce weight 50%. Body construction improved

FOLLOWING announcement of its revolutionary gravity torsion bar suspension for all tandem-axle trailers (see *COMMERCIAL CAR JOURNAL*, January, 1946), the Fruehauf Trailer Co., Detroit, Mich., presents advance information on the new line of commercial trailers embodying improvements in body design, increased braking capacity, and the Trail-Aire Conditioner for the transportation of perishables.

The Fruehauf line will include the Aerovan trailers with aluminum panels and corrugated aluminum lining, improved stainless steel bodies, and the deluxe model Livestock Limousine, in a variety of lengths

from 20 to 34 ft. The entire line of bodies may be mounted on either of the two new Fruehauf suspension systems—the gravity torsion bar tandem-axle or the "multi-rate" spring suspension single-axle system.

The Model 5 "multi-rate" spring suspension, also announced, embodies a new principle in which the rate of spring stiffness—hence control of the ride—is said to increase exactly in proportion to the load, from empty to overload. This means that you get the same ride whether the vehicle is light or loaded. Since the Model 5 axle has a carrying capacity of 20,000 lb., the fleetman can get 2000 lb. of added capacity

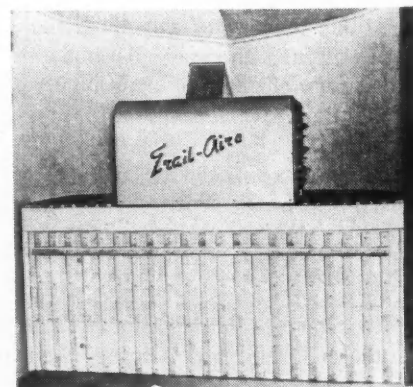
as compared with the Model 4 axle with only a three-pound increase in weight; and 4000 lb. extra capacity as compared with the Model 2 with only 20 lb. additional axle weight.

Design of this suspension is on the order of the so-called slip-end principle, using a long spring of maximum flexibility riding on self-lubricating rollers in each spring hanger which are effective only under no-load conditions. The entire weight of the vehicle, when unloaded, rests on the extreme ends of the top leaf.

The radius rod is hinged on the spring hanger at the front end and is tied to the axle, independently of the spring, by means of the interlocking bracket. In addition to removing all strain from the spring

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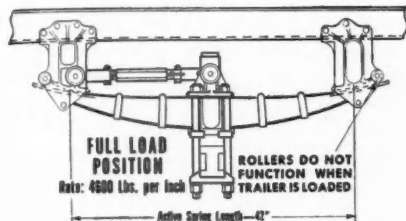
The Trail-Aire refrigeration package, installed in nose of the trailer body



FRUEHAUF SUSPENSION

(CONTINUED FROM PAGE 66)

center bolt, this construction uses straight bolts rather than U-bolts to tie the assembly together, thus eliminating the stretch said to be common in many U-bolt fastenings. The radius rod is so arranged as to take an up-position when the vehicle is light, and a down-position when overloaded. Under normal loading



Outline view of the suspension system, showing position of spring and torque arm in full load position. The rollers function only under light loads

the radius rod is horizontal, permitting the least possible movement, forward or backward, of the axle. This is said to maintain the most nearly perfect axle alignment, allowing equal spring movement front and rear.

As illustrated, the Trail-Aire Conditioner is a complete package unit installed in the nose of the trailer away from dirt and the weather and is designed for easy accessibility by a simple door arrangement. It is recommended for temperatures down to plus 32 deg. Fahr. with a Fruehauf 3-in. fiberglass insulated trailer; and down to plus 10 deg. Fahr. with 6½-in. fiberglass insulation. With additional refrigeration capacity, the 6½-in. fiberglass insulated trailer is good for zero deg. Fahr. Special units for still lower temperatures are available.

The refrigeration package consists of the following equipment:

ENGINE 4 Cyl., V-Type, Air Cooled
H.P. 17 H.P. @ 1800 r.p.m.
Starter Fully Automatic
Lubrication Forced Feed
Clutch Automatic, Centrifugal
COMPRESSOR Reciprocating V-Type
No. of Cylinders 4, Cast in Pairs
Lubricator. Forced Feed, Rotary Pump
CONDENSER Air Cooled, Finned
Condenser Fan Squirrel Cage
EVAPORATOR Copper Finned Tube
REFRIGERANT Methyl Chloride or Freon
UNIT CONTROLS. Fully Automatic with
safety pressure and crank limit relay
thermostatic switch.

Coming to the details of the new bodies, the improved Aerovans use corrugated aluminum lining, illustrated, weighing less than plywood, and new aluminum panels which reduce panel weight by more than 50 per cent. In addition, is the use of new side tubing construction and frame cross-members, better reinforcement of roof cap and roof crown, more convenient location of fuse panel and brake hook-up, complete weather-proofing both inside

and out, new dock bumpers, and improved wiring installation.

The Livestock Limousine follows the pattern of Aerovan styling with a pullman type roof covering for weather protection. Special emphasis has been placed on double-deck loading, ventilation, and loading doors. It features an oval front, with sliding ventilators in the nose for adjustable ventilation, slatted ventilator sides, and a one-man winch type tire carrier.

(TURN TO PAGE 123, PLEASE)

for

LOWER REPLACEMENT COSTS

SPECIFY HANSEN

WHETHER used as original equipment, for re-equipping or replacement, the ruggedness, strength and durability, Hansen Body Hardware lasts longer and cuts maintenance and renewal costs.

Built to withstand the severe usage of commercial body service, and thoroly tested on all types of bodies, trailers and tanks, Hansen Hardware maintains its reputation for quality and its record of sustained performance.

If you are designing, building or having built new body equipment, or are converting or overhauling used units, weigh carefully the advantages in favor of Hansen and use it for all-round satisfaction and service. Most all tank units and the majority of custom-built bodies and trailers are Hansen-equipped.

If you do not already have one, send for a copy of our latest catalog showing the Hansen line of Hardware and one-hand automatic Tackers.

A. L. HANSEN MFG. CO.

5047 RAVENSWOOD AVE., CHICAGO 40, ILL.



Rears and transmissions are overhauled periodically and used as replacements



Engines are rebuilt after having been



C. H. Stolpman

OUR hauling operations present many difficult maintenance problems. These problems are heightened by the necessity of keeping the right amount of cement and other heavy materials going out on construction jobs at the right time. For example, we must not only sustain our maintenance program to the point of maximum efficiency, but each unit must be kept running on schedule, otherwise, the progress of construction would be halted with consequent costly delays to all concerned.

10-Year Maintenance

Our chief problem is that our loads vary a great deal in weight. Some trips involve only a few sacks of cement, many are average loads of two to four yards of cement mix, while others in emergency cases run excessively heavy for the particular unit doing the job. While most of the trips to the construction jobs are short, ranging from 12 to 15 miles, a few routes extend over a radius of 35 miles, and one local route of 185

miles extends nearly to Toledo, all have their starting points from our various Cleveland plants.

Our fleet consists of 95 trucks, 40 of which are heavy-duty, 2-ton to 4½-ton jobs used to haul two to four yards concrete mixture. The other 55 trucks are 1½-ton dump trucks.

Breakdowns "Set" Loads

WHILE our aim is to keep maintenance costs low, in proportion to the size of the fleet operations, it is



run for 40,000 and, later, 30,000 miles



Delays and breakdowns, which can ruin perishable cargo, are combatted by inspections, thorough maintenance, unit rebuilding, big stock of parts and units, and fast emergency road service

by C. H. STOLPMAN

Superintendent of Maintenance,
The Cleveland Builders Supply Co., Cleveland

Program Makes Tough Runs Tick

even more important to eliminate breakdowns for the obvious reason that the cement-mix loads will "set" if delayed long en route. This involves a total loss of both time and cargo. To avoid breakdowns we try to hold average loads to rated capacity of the vehicles. But when an emergency comes up, requiring, say, five tons to finish a job in a hurry, you have to haul it all (or carry out 3 and return for 2 more) and thus

the truck is overloaded. This may be an extreme case, but you can't avoid it when the emergency does arise.

To cite one notable example, we had a lot of expensive trouble with one small unit which used to run from \$75 to \$165 to repair. The breakdowns were so frequent, we had to work out some solution. So, we asked to have a special 3-ton type of transmission and rear axle assembly installed. They told us it would cost

\$250 to make the change-over. We ordered it done and have had no trouble since. In fact, we have already run this unit 4½ years and still no rear-end or transmission trouble has occurred.

Significantly, the savings increased. In four years we saved three times as much as the original cost in time, labor and material used in the frequent failures with the older,

(TURN TO NEXT PAGE, PLEASE)

10-Year Maintenance . . .

(Continued from page 71)

lighter equipment. Besides, hidden costs of having the unit out of earning operations were eliminated.

Some operators may disagree with this policy, on the theory that units of adequate size to carry the occasional maximum load should be used in the first place. Here again, cost of operations comes into the picture. If we would use the heavier type, say a 5-ton unit, to take care of the occasional emergency, the operating costs would leap in proportion.

However, we do need the 3-ton type of axle and transmission, as our work is different. Moreover, we use the same type and size of body as on the original 1½-ton job, we cannot overload it any more.

Highlights of Maintenance

HERE are other phases of our maintenance program which have practically eliminated all major road failures, and have given us a record of five large trucks in our fleet of one make which, combined, have run 550,000 miles, with only one motor out—the other four never had the pans down or the heads off. And during the four war years, we did not have a single piece of equipment laid up which we had in operation on government work from Carbondale to Kansas City, to Baraboo, Wis., and eight other units running at the Soo.

First, to combat cargo loss, we maintain two service trucks to go out to fix the minor road troubles that we have—mostly tire and starter failures. If it's tire trouble, the service driver takes out a fully inflated tire the moment a call comes in. To allow a truck load of cement mix to stand long, means the loss of trip and cargo alike. Naturally, tire trouble is one of our major headaches. Sometimes we have as many as 18 tire changes in a single day.

Engine Speed Controlled

BECAUSE some drivers like to run fast, and these units are not built for speed, we use governors to control speed to a maximum of 35 m.p.h. This policy is particularly necessary in our operations because the same driver does not always operate the same truck. The drivers, for example,

operate out of different stations. Any driver may be called on to change, any day, from a two- to a four-yard unit, and they operate differently. So, speed control is absolutely essential for safe and economical operation, and that includes longer life of the trucks.

We use oil filter cartridges liberally (buy several gross at a time), changing cartridges every month. The same brand of crankcase oil is used straight through the fleet, and the oil changed with the change of filter cartridges. This plan works well as we seldom burn out a bearing. We also watch oil closely to see that it does not plug up hydraulic valve lifters, with resultant valve troubles.

Chassis lubrication is done every week.

Wet Mix Units Cleaned Nightly

IN OUR operations, we clean the cement-carrying units every night. They are given a good wash after which they are sprayed with paraffin oil and wiped off. If the wet concrete is allowed to get thoroughly dry, you cannot touch it even with muriatic acid, especially when and if it is allowed to get ⅛-in. thick.

10-Yr. Maintenance Program

WHILE war conditions changed many maintenance plans, our policy is to operate each power unit about three years, or around 40,000 miles. Then we take it down and install new rings, new bearings, new wrist pins, new bushings, and, if necessary, new valves. Then after running them for approximately 30,000 miles, or two years, we give the engines a thorough checking over, install new rings, and any other parts which may be worn. We alternate these rebuilding programs until we have approximately 10 years of use before trading in for new units.

Meantime, we grind the crankshafts at the end of the first five years, and usually get 10-years' service from them. This is average. At the time we do the major engine overhauling jobs, we remove, clean and rebuild the carburetor, put on new ignition wires and distributors, clean and rebuild generator and starter—what-

ever the unit needs, that is done. Engines are run-in on stands for three days at different speeds before being placed in service.

We rebuild transmissions and differentials in our own shop. All worn parts are replaced, making each unit like new.

We deviated slightly from this plan during the war when we could not get transmission or rear-end parts. Then, we sent the old units up to the manufacturers who made them and got the work done. We got better service that way.

Engine units to be overhauled are taken down at night, and a new or rebuilt unit installed during the same night to provide uninterrupted service. In case the transmission and differential must be changed, these operations are performed at the same time. Then the removed units are rebuilt right here in our shop.

We send out rear spring work. We find it cheaper than doing it ourselves. We change our own front spring replacements. Two extra springs always are carried in stock.

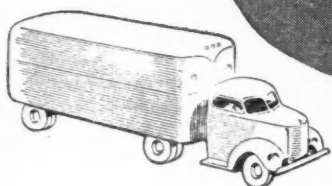
Tire Maintenance

AS OUR equipment uses dual tires on the rears, we have approximately 600 tires to inspect, check and keep in proper pressure. One man is employed to do this job and, as previously explained, all tires are dismounted and remounted in the shop.

For obvious reasons our tires, which range from 6 x 32 to 11:00 x 20, get a terrific pounding under heavy loads over railroad tracks, bridges, ties and so forth. They run over abrasives and sometimes so close to steel furnaces so hot they almost burn the paint off the truck. And so it is not surprising that even the best quality of prewar tires should play out completely in 12,000 to 15,000 miles of this gruelling work.

Recapping does not pay in our type of operation even on the front wheels. It is no reflection against the recapping industry but, under our severe hauling conditions, we never get the cost out of recaps. In fact, after capping, it is common for a failure to occur on the second trip. Our experience shows that the new tread does not pull off—the tire simply blows out; then, besides the loss of the recapping price, we ruin a good inner tube.

**EXIDES ASSURE
LONGER BATTERY LIFE AT
A LOWER COST PER MILE**



"When you buy an Exide, you buy to last." The truth of that slogan is being proved daily on thousands upon thousands of trucks, of all types and sizes, in every kind of service. And with this longer life which Exides provide, you are assured of a lower battery cost per mile of operation.

Exide engineering and manufacturing skill, gained from years of experience in building high quality

batteries, has been augmented by an intimate knowledge of the conditions under which the batteries are used. All combine to provide you with batteries that excel in dependability, long-life and ease of maintenance.

Exide
BATTERIES

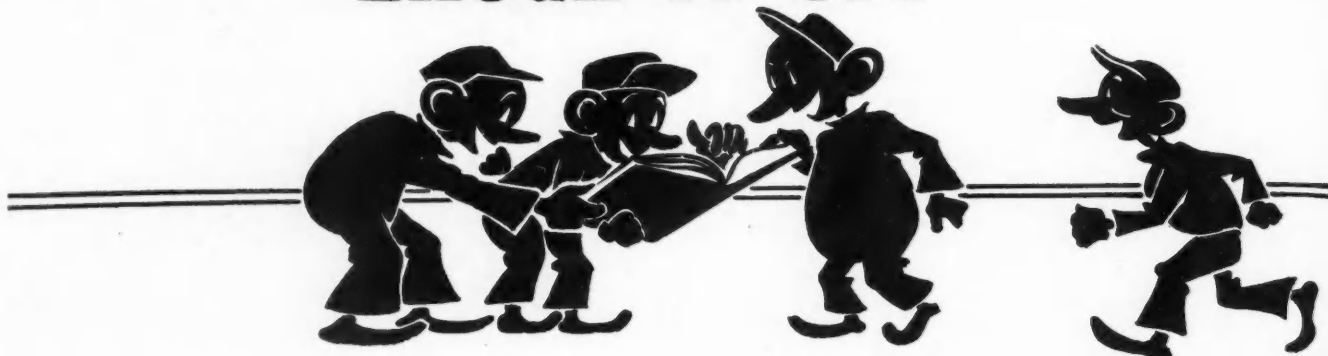
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

JULY, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

73

LAUGH IT OFF



"Is this the Fidelity Insurance Co.?"
inquired the wife of a road driver.

"It is, madam; what can we do for you?"

"I want to see if anything can be done about having my husband's fidelity insured."

C C J

*A little cutie from Sioux Falls
Wore a newspaper to a ball,
The dress caught on fire
And scorched her entire
Front page, sport section and all!*

C C J



The midget had just married a fat lady in the circus. He just stared at his bride, and said: "Acres and acres of it, and it's all mine!"

C C J

*Says our road mechanic:
"Hash joints have finally got me. My stomach is so upset I have to eat my dessert first."*

C C J

The beautiful receptionist says that a girl who slaps her sweetheart may not want to hurt his feelings as much as she wants to stop them.

C C J

Transport Driver: "Is that a Holstein cow over there in the field?"

Co-Driver: "I dunno—I can't see her license plates."

C C J

Driver: "Do you expect to be busy tonight?"

Road-House Queenie: "That depends upon the boys who stop over."

C C J

Sophronia, our maiden sob sister, says she feels just like a young colt. We think she looks more like an old .45.

JIM, THE SHOP MECHANIC, SAYS THAT A WOMAN CAN MAKE OR BREAK A MAN BUT A GOLD DIGGER DOES BOTH.

C C J



Sadie the Safety Steno: "The company has hired the most handsome young doctor you ever saw. I'm going over to the medical department and have him examine me."

Carrie the Cashier: "Why, what in the world for? You're perfect all over."

Sadie: "Sure, but he doesn't know it."

C C J

The fleet operator reported to his office on Tuesday morning with a woe-be-gone look on his face.

"What in the world is troubling you this fine day?" queried his terminal manager. "Boy was I on a lulu of a bender over the week-end," replied the F.O. "The trouble is, I don't know whether I cooked my goose or vice versa."

C C J



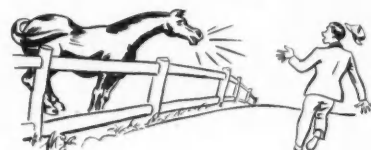
"Due to circumstances beyond our control, the company feels you should start your vacation as of NOW!"

Mandy, the powder room maid, had all the terminal girls ga-ga when she politely announced one morning during the recess period that she had two pairs of nylon hose she would like to sell. With one exception, the girls tried to outbid each other in their determination to own the nylons. The lone skeptic inquired of Mandy:

"Why don't you keep them to wear yourself? Don't they come up to your expectations?"

"Lawdy, no!" exclaimed Mandy. "Dey hahdly comes up to mah knees!"

C C J



A circus scout traveling through Kentucky was amazed to hear a horse say, "Hi, stranger! Did you know I won the Derby last year?" The scout hurried to the farmer and told him to name his price for the horse. "Fifteen dollars," he said. "Don't kid me—how much do you really want?" replied the circus man. "Fifteen dollars is all he's worth," insisted the farmer. "That stuff about winning the Derby is a pack of lies!"

C C J

The Office Beauty was telling her girl friends about her adventures on the previous night. "This man took me up to his apartment and gave me a beautiful mink coat!"

"And what did YOU have to do?" asked Katty Kora.

"Just shorten the sleeves a little," the O.B. replied.

C C J

"The way things are going," says Maisie, our telephone operator, "Pretty soon there'll be more wolves than doors for them to be chased from."

(Resume Work)



*"Kids really watch their step in this town
... they teach 'em traffic safety in school!"*

And America's traffic accident rate would nose-dive if grown-ups took half as much care!

Americans are being killed and injured in street and highway accidents right now considerably faster than our armed forces sustained casualties in World War II.

Obviously, the danger in the battle zones was incomparably greater—yet it's easily possible that this year may see as high as 180 traffic casualties every hour here at home against a rate of 32 casualties an hour at the fighting fronts!

A gloomy picture with one bright spot

There's one bright spot in this otherwise distressing panorama of our most motorized nation in the world. During a period when fatal accidents among persons of all ages went up 114 per cent, the rate among children from 5 to 14 decreased 9 per cent.

This record spotlights the value of the excellent safety education pro-

grams in many of our U. S. schools.

Why can't all of us be equally careful?

To keep the accident rate down, there's much that can be accomplished by more highways that are specially engineered for safety.

More stringent traffic laws, where needed, help too—and "community pride" campaigns, of course.

But it's important to realize that most traffic accidents don't just happen—they're usually caused by someone. A motor vehicle driver—or a pedestrian—slips up and gets careless . . . new casualties go on the record books!

Driving is no job to take lightly

The average motor vehicle driver wouldn't think of trying to pilot an airplane without training. Yet plenty of people confidently take cars and trucks out on the streets

and highways who might have trouble passing a driving competency test.

In fact, the unskilled and irresponsible driver may well be the most serious of all menaces to traffic safety. Nationwide action is being advocated to make driver licensing more thorough and strict.

As one of the pioneers in building and working for increased traffic safety, Studebaker is convinced that the exercise of commonsense and self-discipline—by pedestrians as well as motorists—can help substantially in reducing the toll of highway injuries and deaths.

STUDEBAKER

South Bend 27, Indiana, U. S. A.

**BUILDER OF CARS AND TRUCKS
YOU CAN TRUST**

C.C.J. QUIZ

by ROBERT F. BAHL



Answers on Page 98

Here's a quiz on facts and figures. We'll go light on the figures if you can give us the facts. Each question is worth 10 points in arriving at your score. You'll be in select company if you rate 70 or more. Answers are on page 98.

1.

Can you tell us which state in proportion to its population has the greatest truck registration?

- a. Texas
- b. California
- c. New York
- d. Montana



2.

Also, in proportion to its population, which city above 100,000 population has the greatest number of trucks?

- a. Chicago, Ill.
- b. Charlotte, N. C.
- c. Dallas, Tex.
- d. Sacramento, Calif.

3.

Of all the trucks ever manufactured in this country, how many are still on the road today?

- a. 1 out of 2
- b. 1 out of 3
- c. 1 out of 5
- d. 1 out of 10

4.

For ten prewar years, new truck registrations were highest for . . .

- a. Ford
- b. Chevrolet
- c. All other makes combined

5.

Your truck is hitting the "average" if its annual operation is . . .

- a. 5000 miles
- b. 10,000 miles
- c. 25,000 miles
- d. 50,000 miles



6.

Big trucks, little trucks, and medium-sized trucks—you'll find them all on the road today, but the majority is rated at . . .

- a. less than 1½ tons.
- b. 1½ tons.
- c. over 1½ tons but less than 3½ tons.
- d. 3½ tons up to 5 tons.
- e. 5 tons and over.



"Bah— You're just a COMMON carrier!"

7.

Our third assistant statistician tells us that operators of just 1 or 2 trucks account for about two thirds of all the trucks in the country. Is he right or wrong?

- a. He's right.
- b. He's wrong

8.

There were more trucks on the road in this year than in any other. The year was . . .

- a. 1929
- b. 1934
- c. 1941
- d. 1945



9.

More than 54,000 communities in the U. S. must rely entirely upon motor trucks for transportation of goods. They are not served by railroads at all. The state with the greatest number of truck-dependent communities is . . .

- a. Texas
- b. Pennsylvania
- c. Wyoming
- d. Tennessee

10.

Number 1 operator of trucks in the country with the greatest number of trucks owned would be . . .

- a. the farmers.
- b. the common carriers.
- c. the retail stores.
- d. government agencies.

*Whatever
your
Business..*



Bakery Goods



Meats

*There's an **Ls** Truck Body to Meet Your Needs*



Dairy Products



Groceries

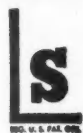


Beverages

If your business requires truck bodies of any special design—if your particular requirements call for an individualized style—you can get exactly what you need from your Ls Jim—your local Lindsay Body Builder.

He has experience in your field. He has the know-how to meet your design requirements. And, he can build into your truck body all the basic advantages of Lindsay Structure: lightness, great strength, durability, all-metal construction, ease of repair, low over-all operating costs.

Ls service is nationwide, and there is a Lindsay Body Builder near you. Ask him today about your next truck body. The Lindsay Corporation, Adams-Franklin Bldg., Chicago 6, Ill.; 60 E. 42nd St., New York 17, N. Y.; or Lindsay Structure (Canada) Ltd., Dominion Square Building, Montreal.



LINDSAY STRUCTURE

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

DISTRIBUTORS AND BUILDERS IN ALL PARTS OF THE COUNTRY



WASHINGTON RUNAROUND

CPA Optimistic on Trucks . . . Industry Estimates High . . . Trailer Outlook Improves . . . 56,000 Insulated Bodies . . . Battery Status Better . . . Surplus Trucks Selling . . . Wage Exemption Unchanged . . . Miscellany

CPA Optimistic on Trucks

For the first time in many months CPA officials are optimistic over the possibilities of a continuing high truck production rate. Beginning with July, output should reach prewar levels and remain there, provided no major strikes occur.

Truck production in May totaled 74,650 units, as compared with manufacturers' forecasts of 106,557. The decline was due to the drop in production at Ford and GM. Surprisingly enough, the May total was only 7,232 below April production. In light trucks a gain of 969 units was realized. The April total in units of this type was 31,431 compared with 32,400 in May. Production of mediums dropped from 44,047 in April to 37,427 in May, while light-heavies went from 4,456 units in April to 3,459 in May. Heavy-heavies increased from 1,348 to 1,364.

Industry Estimates High

However, industry estimates are still considerably higher than CPA forecasts. The industry expected to turn out 105,000 units during June, while CPA says production will not exceed May totals and may fall several thousands below.

Industry predictions for July and August are 124,372 and 130,365 units, respectively. CPA does not go along with these estimates, but does anticipate July production at least equal to April.

Passenger car production in May reached a postwar peak of 152,948 units. Roughly the same number was expected in June.

Costs Curb Road Building

Contracts for Federal-aid highway projects are lagging. The primary reason is high costs. In general, bids have been considerably higher than state engineers' estimates. Other contributing factors are shortages of steel, lumber and cement. Labor is none too plentiful.

Apportionment of the second \$500,000,000 of the \$1,500,000,000 authorized by the Federal-aid Highway Act of 1944 has been announced, but there is not much optimism over how much of this amount will be used.

by **GENE HARDY**

CCJ Washington Bureau

Trailer Outlook Improves

Truck-trailer production is proceeding satisfactorily, although component supplies cannot be described as adequate. The in-

What About OPA?

As this issue went to press OPA was legally dead and speculation ran wild in the Capital as to possible Congressional action in view of the President's stinging veto. Informed sources predicted that if OPA were extended in any form for another year by a rebellious Congress the extension would be no better, from the OPA viewpoint, than the measure which wound up on the scrapheap as a result of the veto.

There was little possibility that OPA would be extended in the form in which it existed prior to July 1. Die-hard dissenters were preparing for a finish fight to assure the agency's demise.

Under the vetoed bill prices of practically everything used by the trucking industry would have risen. Cost absorption on trucks and autos would have been wiped out. About 27 per cent of the trailer industry's output would have been decontrolled. Parts prices would have jumped substantially. Ceilings on petroleum products would have been dropped. Early decontrol of tires, contract carrier rates, maintenance equipment and most tools was also forecast. Batteries would have remained under control because of the lead shortage.

dustry has been assured by CPA that it will be able to obtain enough softwood plywood to squeeze through on refrigerator and insulated body types. Steel supplies are straightening out but, as in all industries, sheet will be tight until at least the end of the year. Substitution is necessary for many parts requiring castings, reflecting the pig iron shortage. In some cases, new trailers are kept out of operation because of the lag in tractor deliveries.

56,000 Insulated Bodies

Approximately 30,000 van-body trailers will be built during the next year, of which about 6,000 will have insulated bodies requiring the use of plywood. About 50,000 truck bodies of the same type will be made during the same period, CPA reveals.

9,226 Trailers for Veterans

An inventory of surplus truck-trailers revealed that at the end of May the War Assets Administration had on hand 9,226 units. About 81 per cent of these were new trailers and the remainder in used condition. The Cincinnati region had the greatest number of new trailers, and the Fort Worth region the largest number of used trailers.

At present all surplus trailers are held for exclusive sale to veterans. The industry has recommended that certain special types be made available for general sale. It contends that retention of all trailers for veterans for an indefinite period will serve only to delay disposal, thereby depriving the government of the best possible return. It is felt that veterans may hold off buying until prices come down. While the industry has apparently changed its mind about buying back surplus trailers, there is a general feeling that the quantity on hand could be absorbed, provided they are sold now.

Battery Status Better

The termination of the lead strike should ease the replacement battery situation slightly. Production of the original goal of about 16,000,000 batteries is still possible, (TURN TO PAGE 80, PLEASE)

A Company is Known **BY THE CUSTOMERS IT KEEPS!**



•TRAILER FLEET OF WITTE TRANSPORTATION CO. IS 100% FRUEHAUF!

"We use Fruehauf Trailers exclusively because they are easier to keep on the road. Maintenance costs are less—and replacement parts and service are always quickly available when needed."

F. M. PaDelford, General Manager of Witte Transportation Co., is speaking. And Mr. PaDelford knows because his company, one of the first motor transport operators in Minnesota, was a pioneer in the use of Trailers for over-the-road hauling.

Today the Company operates a fleet of 23 Trailers . . . all Fruehaufs . . . on daily delivery

service from Minneapolis and St. Paul to points in southeastern Minnesota and western Wisconsin.

Mr. PaDelford continues: "What we are selling is service to customers, and Fruehauf Trailers have helped us maintain an outstanding record for dependability."

SERVES MAYO CLINIC

Since 1920, Witte has hauled all of the oxygen used by the famous Mayo Clinic and surrounding hospitals in Rochester, Minnesota. That's a good example of what Mr. PaDelford means by "service to customers"!

It's significant that companies like Witte—the professional haulers who depend on their rolling equipment for their entire earnings—use more Fruehauf Trailers than any other make. In fact, the majority have used Fruehaufs from the start.



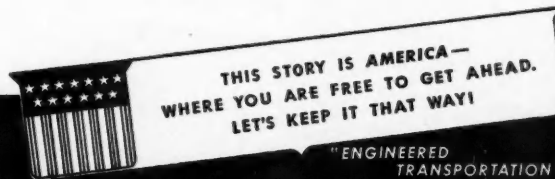
Latest addition to Witte's fleet is this Fruehauf Tandem Van, pulled by a White tractor.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER CO. \ DETROIT 32

8 Factories—60 Factory Service Branches

FRUEHAUF TRAILERS



WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 78)

but with the heavy demand conservation measures are vital if vehicles are to remain on the road this winter. There will not be a government-sponsored conservation drive. Therefore, the job is one that must be undertaken by highway users. There should be sufficient batteries to enable dealers to squeeze through the winter, but only if extreme care is taken.

Third quarter lead allocations to battery producers are expected to be slightly lower

than those authorized for the second quarter.

Exports will probably remain at about 3 per cent of total replacement battery production during the third quarter. Approximately 135,000 batteries were exported during the second quarter under this program. In computing the total quantity of batteries to be exported, repaired and rebuilt batteries as well as batteries made available through surplus stocks are charged against export quotas.

Surplus Trucks Selling

Out of a total of 197,794 trucks declared surplus by the armed forces, 159,-

893 had been sold up to June 1, 1946. About half of this number were sold to veterans. Sales during April and May accounted for 31,759 of the total.

Wage Exemption Unchanged

The motor carrier exemption from the overtime wage provisions of the Fair Labor Standards Act will remain unchanged for the time being. The provision to eliminate this exemption was not in the minimum wage bill reported by the House Labor Committee, and had previously been stricken from the Senate-approved version of the bill.

Bulwinkle Bill Stymied

At the end of June it did not seem likely that Congress could iron out the Bulwinkle bill in time to pass it before the July 15 adjournment. This bill would exempt rate-making bureaus and conferences from the anti-trust statutes, provided they conformed to rules established by the ICC. It will probably have to go through the legislative mill again in the fall.

Parts Shipments Up 300%

Replacement parts shipments have increased about 300 per cent, but the shortage is still acute. Copper bearing parts are in particularly short supply... The extension of the Second War Powers Act until March, 1947, continues the ICC emergency powers over motor and water carriers... Chains and anti-freeze will be in ample supply this winter, according to CPA... Several foreign countries have expressed interest in buying American trucks for military purposes. Any vehicles exported under such a program would be in addition to the regular quota of trucks for commercial use now permitted.

CPA is considering a boost in the natural rubber content of all truck tires from 8.25 up, to what will amount to almost prewar quality. If this action is taken the natural rubber content of the smaller truck sizes will also be increased to about 25 per cent.

... MALCOLM P. FERGUSON, recently elected president of Bendix Aviation Corp.



... HAROLD F. MATTHYS, newly appointed Detroit branch manager of the Federal Motor Truck Co., Detroit.

PERFORMANCE

as great as the name



There are no short-cuts in the Edison line... it is complete in sizes, types and heat ranges. Every Edison plug is engineered to meet the exacting demands of the engine for which it is recommended. This is just one of the features that guarantee performance as great as the name.

Furthermore, Edison engineering skill constantly brings you great new developments in spark-plug design. The exclusive "SPUN-ON" Gasket, for instance, is the only design that insures a 100% compression-tight seal between engine block and spark plug. That same skill is at your beck and call... feel free to consult Edison-Splitdorf's Transportation Service Department.

Meanwhile, see your jobber for Edison Spark Plugs and other quality products.

ONLY AN EDISON HAS THIS PATENTED "SPUN-ON" LEAKPROOF GASKET

SEND FOR YOUR COPY OF THE NEW EDISON SPARK PLUG "POWER GUIDE"



Edison

SPARK PLUGS

Edison-Splitdorf Corporation, West Orange, N. J.

Performance goes up in smoke . . .

when worn
connecting rod bearings
cause oil pumping

Smoke is a symptom of serious illness in a car, truck, bus or tractor engine. It indicates oil pumping—oil out of control getting into combustion chambers in excessive quantities to foul spark plugs, pistons and piston rings. An oil pumper is a sluggish motor, costly to operate.

Frequent cause of oil pumping is worn connecting rod and main bearings. A worn bearing cannot perform one of its most important functions—the metering of oil to the vital parts of the engine. Just one badly worn bearing can oil starve the other bearings into complete, costly failure.



When there's smoke, be sure to check the bearings. (The Federal-Mogul Bearing Oil Leak Detector is again available for quick diagnosis before tearing down the engine, and for final check after overhauls.) If bearings are worn, replace with genuine Federal-Mogul Oil-Control Bearings for restored pep, power and operating economy.

FEDERAL-MOGUL SERVICE • COLDWATER, MICHIGAN
DIVISION OF FEDERAL-MOGUL CORPORATION

Replace With Genuine
FEDERAL-MOGUL
Oil-Control Bearings





INTRODUCING . . .

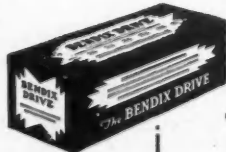
... ROBERT J. ANDERSON, as assistant manager of the Ford Motor Co.'s Charlotte, N. C., branch... And GERALD C. ELICK, as assistant manager at the Milwaukee branch. HENRY M. STROUT, as manager of the Somerville, Mass., branch... and WILLIAM E. KIMBROUGH, as assistant manager of the same branch.

... Four Zerone-Zerex anti-freeze district sales managers for the new sales offices of the E. I. duPont De Nemours and Co., Inc.: JOHN A. WALKER, district sales manager in the Empire State Building, New York City; E. E. MEYER, district sales manager at St. Louis; JOHN C. SACK, district sales manager at Chicago; and T. A. PARRIOTT, district sales manager at Denver.

*You wouldn't patch a tube
WITH CHEWING GUM!*



There is no
substitute
for genuine
Bendix Drive
Parts



It would be hard to imagine any service man being as silly as our hero in the picture. Yet there is another type of shortsightedness that is surprisingly common—the use of other than genuine parts for repairs.

A customer brings his car to you for repairs because he feels he can trust you to do an adequate job. And when you risk losing his confidence by using makeshift or inferior parts it's just the same as if your own work was inferior.

Genuine Bendix* Drive Parts are engineered and manufactured in the same plant by the same skilled hands and to the same exacting standards as the original Drives—and, properly installed, will give the same satisfaction.

Don't risk losing old customers for the sake of a few pennies—insist on Genuine Bendix Drive Parts when you order from your distributor.

*REG. U. S. PAT. OFF.

"Look for the blue and white box"

Bendix Drive

ECLIPSE MACHINE DIVISION

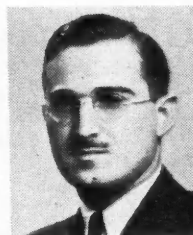
BENDIX AVIATION CORPORATION

ELMIRA, NEW YORK



AVIATION CORPORATION

... HOWARD C. GLUNZ, as manager of the Toronto, Canada, branch of Mack Trucks, Inc.



... W. H. HANKS, as factory representative for the Freuhauf Trailer Co. in West Virginia and Eastern Kentucky. His office is located in South Charleston, W. Va.

... L. M. WILSON, as Eastern division manager of the Whiz Automotive Division of R. M. Hollingshead Corp., Camden, N. J.



... RICHARD C. CARSON, as sales manager of the Shuler Axle Co. of Louisville, Ky.

... MARSHALL NAUMAN, as branch manager of the Billings, Mont., branch of the Freuhauf Trailer Co.



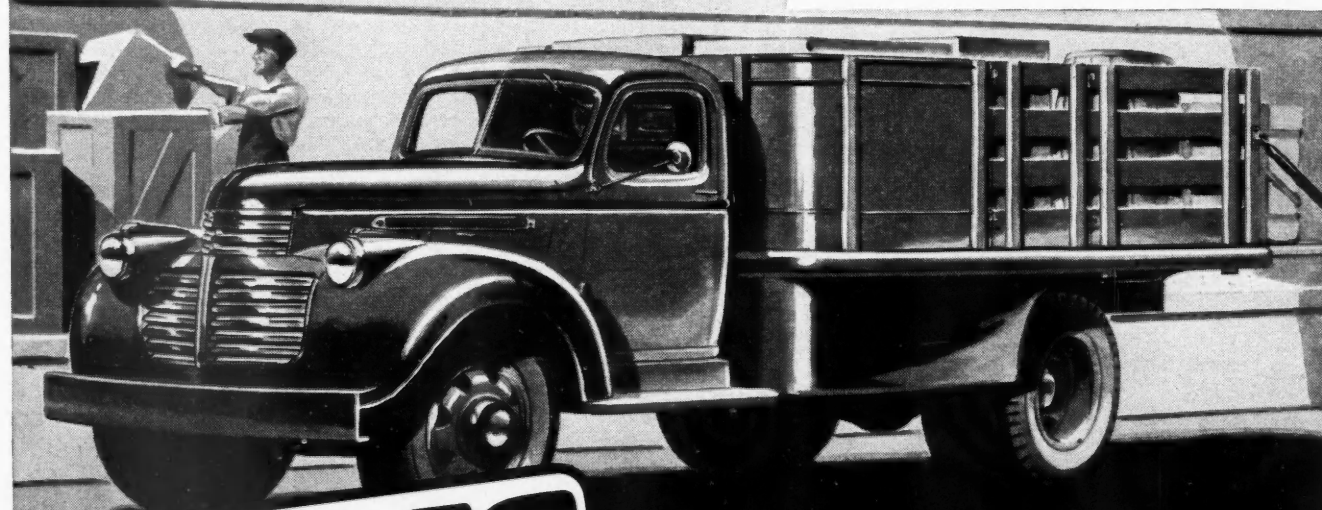
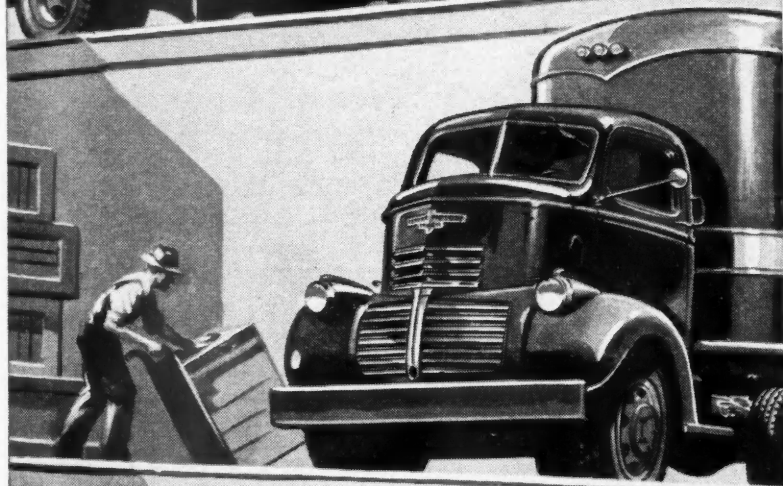
... WILLIAM G. ZINK, assistant manager of the Los Angeles district for the Automotive, Aviation and Government Sales divisions of the B. F. Goodrich Co...

(TURN TO PAGE 84, PLEASE)

BUILT FOR *Your* BUSINESS



Whatever your hauling requirements . . . large or small, heavy or light . . . GMC's wide range of models from ½ to 20 tons offers you the exact kind of trucks you need to do your job. Postwar GMC pickups, panels, stakes, platforms, tractors and chassis units are the best GMCs ever built. They have engines of the same basic design as the famous "270" which powered nearly 600,000 GMC-built Army trucks. They boast heavier frames and axles, sturdier clutches and transmissions and bigger brakes, in addition to such prewar GMC advantages as Turbo-Top Pistons and Recirculating Ball-Bearing Steering. GMCs are all-truck built. They're built for your business.



GMC
TRUCKS

The Truck of Value

GASOLINE • DIESEL

GMC TRUCK & COACH DIVISION • GENERAL MOTORS

INTRODUCING . . .

(CONTINUED FROM PAGE 82)

And EUELL E. BOST, as manager of the Dallas district... And J. ELLIS HUFFMAN, as manager of a new district in Tulsa, Okla.... And JAMES N. DAVIS, as manager of the Cleveland office as an additional automobile and aeronautical office... And WILLIAM R. BLAKE, given the same assignment in the San Francisco district... J. F. WELLER, as sales assistant to the president of the American Brake Shoe Co., New York, N. Y.
... ROBERT M. WARD, to head the new sales zone for Champion Spark Plug Co.

The new sales territory is comprised of Michigan, Ohio, Kentucky and West Virginia... ERNEST M. LUNDA, as assistant to the chief engineer of Mack Mfg. Corp. ... OLEN D. BRAZIL, as district manager of U. S. Tire sales in the Charlotte, N. C., district... And HORACE E. WALKER, as district manager at New Orleans, La.... CHESTER W. ORT, as northwestern division manager of the new division of the U. S. Rubber Co., in Portland, Ore.... And DWIGHT B. ELDRED, as central division manager of the division... And LAWRENCE J. GOODMAN, as manager of wholesale merchandising at the company's general offices in New York.
... CARL CHAPIN, as sales manager of Red

Star Transit Co., Inc., Detroit, Mich.... RUSSELL L. UNDERWOOD, as assistant to the general sales manager at Willys-Overland Motors... And R. T. BALDWIN, as assistant sales manager at the home office of the company in Toledo.

... FREDERICK SHROEDER, recently appointed to the sales staff of the Kold-Hold Mfg. Co., of Lansing, Mich.

... TOM O. DUGGIN, who recently resigned as vice president in charge of the service division of Thompson Products, Inc.

... JOHN R. O'LEARY, as operating manager of the Peoria, Ill., terminal for Scherer Freight Lines of Ottawa, Ill.

... BERNARD ZITTER, who has been appointed manager of the new factory branch and warehouse of the King Quality Products Co., Boston, Mass.

... HARRY B. KELLER, representing the Pennsylvania Rubber Co. in Southwestern Pennsylvania and West Virginia.

... JOHN E. YOUNG, as manager of sales for the Service Station Equipment Co., Muskegon, Mich., and ... DALE N. HARRIS, who returns to the company as advertising and sales promotion manager for Bennett-Eco products.

DETROIT DISPATCH

(CONTINUED FROM PAGE 61)

original 1946 price. In addition engineering improvement allowances for the three models range from \$100 to \$130.

Rate Increase Expected

Motor freight fleet operators are greatly encouraged by action of the Interstate Commerce Commission in raising railroad freight rates. Several of them here think that with the ice broken on rate increases, truck freight rates also may be increased soon. The railroad, incidentally, received a 6 per cent boost, only about a fourth of the increase asked for, and the truck operators are hopeful of receiving a little better treatment. They say that the rail increase was an emergency action pending a full hearing, and that if further increases are granted, the chances for a higher truck rate increase will be enhanced.

Natural Rubber for Car Tires?

Recent news stories have been dealing with the possibilities that certain tire manufacturers are going to introduce this fall a so-called premium passenger car tire, containing a pound or two of natural rubber. However, it is reported that at least three of the major tire companies are opposed to the idea of diverting any natural rubber into passenger car tires until the supply is much better than it looks to be any time this year. The reason is that they feel any additional crude rubber available should go into truck tires, since passenger car tires are quite satisfactory when made of 100 per cent synthetic, whereas the partially synthetic truck tires never have quite measured up to a good natural rubber product. Therefore, they think that all natural rubber available should be used in the larger truck and bus tires.

END

(Please resume your reading on P. 62)

Know anyone who drives a stylish 1920 Apperson Eight?



Remember when Apperson advertised "Beauty that Lasts?" Said this manufacturer in 1920: "Today's Apperson owners know there is no such thing as an Apperson going out of style." Yet many drastic changes in motor car styles have come and gone since then. Regardless of the changes time has wrought, today there's an AIRTEX fuel pump that responds to the exact fuel need of every gas-driven car and truck.

AIRTEX
Factory Tested FUEL PUMPS

Assembled with AIRTEX Diaphragms, Guaranteed for

All AIRTEX diaphragm assemblies are 100% leakproof. Linkage, valves, rocker arms are carefully made for maximum performance. High pressure castings are warp-proof and uniformly strong and accurate.



"Airy" Tex says:

"Your profits climb with the AIRTEX Line"

AIRTEX AUTOMOTIVE DIVISION

CHEFFORD MASTER MANUFACTURING CO., INC.

FAIRFIELD, ILL.



WILLETT INSTALLS TWO-WAY RADIO

(CONTINUED FROM PAGE 57)

There are also comparable present limitations in the direct message transmissions which are possible by individual drivers. At present a Willett driver can only make a direct call to the dispatching unit at his own company's headquarters. However, it is stated that it will be possible later (assuming FCC sanction) so to expand the system that the driver also will be able to make other direct calls—such as to police, other company dispatching offices, etc.

One of the "bugs" that the company has discovered in their new communication system, is that there are a few spots of static interference along the normal travel routes of their trucks. It is thought that these are probably due to local electrical generators or large electrical appliances that are not properly grounded to prevent such radio interference. The company officials hope that, through volunteer aid by one or more city police cars with directional finders, the source of such local interferences may be located and removed.

As a practical safety measure, the company has already established an operating rule that no driver shall respond to a radio-telephone call while his car is in motion. That is, if he should hear a general loud-speaker call message which requires a response, he is instructed not to lift his telephone piece to make the response until after he shall have brought his car to a complete halt at the side of the street or road.

If future experiments of the Willett Co. with two-way radio telephones continue to prove out as well as they seem to promise at present, it is the plan of the company to install such equipment in many more of their tractors and trucks. The company hasn't yet worked out any complete cost experience; but their tentative present charge for the installation and maintenance of radio-telephone service on a unit of their trucking equipment which is being rented out, has been fixed at \$1 per day.

END

(Please resume your reading on P. 58)

WHY TIRES WEAR FASTER ON CURVES

(CONTINUED FROM PAGE 43)

Now let us suppose that vehicle speed on the same curve is increased to 40 m.p.h. Slippage is now 12 ft. per 100 ft. of forward travel and the total in making the 90 deg. turn amounts to approximately 48 ft. If on the other hand speed is reduced to 10 m.p.h., slippage drops to only

.75 ft. per hundred feet of forward travel, or a total of 3 ft., and becomes practically negligible.

Add up the number of sharp turns on your particular routes, figure the average speed at which your trucks take these curves, and it becomes an easy matter to see how good tire mileage takes a terrific shellacking if speeds are not held down.

END

(Please resume your reading on P. 44)

Central Mike Says:

**"EVERY MECHANIC NEEDS
THESE 2 SETS!"**



SET NO. 745 RL
OUTSIDE MICROMETERS
Range 0 to 4 inches.
\$46.50
Complete with Ratchet Stops, Lock Nuts, Standard Test Gauges and DeLuxe Hinged Plush-Lined Case



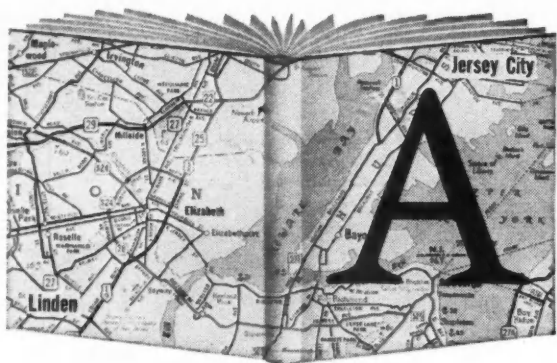
SET NO. 808
INSIDE MICROMETERS
Range 1½ to 8 inches.
\$12.00
Complete with Extension Handle and DeLuxe Plush-Lined Case



WRITE TODAY FOR CATALOG NO. 17
The entire line of individual micrometers and complete sets illustrated and fully described.

THE CENTRAL TOOL CO., AUBURN, RHODE ISLAND

CENTRAL
FOR MORE THAN A
QUARTER CENTURY
SPECIALISTS
IN FINE
MICROMETERS
CERTIFIED ACCURACY



Tale of Two Cities ...and a Mack truck

Between the important industrial cities of **Linden, N.J.** and **Jersey City** this Mack carries 38,000 lbs. of Sulfuric acid for the **American Cyanamid & Chemical Corporation.**

The men of this corporation regard this Mack as their *hard-working, dependable* link between profit and pro-

duction... giving the kind of product transportation necessary for successful business.

Between any two industrial cities in America, you can almost be sure to find Mack carrying the products of big and small concerns alike. They're depended on to keep industry on the

road... because they're recognized as the truck that works harder and longer.

Trouble-free performance, minimum maintenance, long life... these features paint a picture of a Mack. Tie your business together with a Mack... it can make money, for less money, for you!

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack

TRUCKS

FOR EVERY PURPOSE



Performance Counts!

TRUCK SPECIFICATIONS TABLE

OF 1946 PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY
COMMERCIAL CAR JOURNAL

KEY TO DEFINITIONS, REFERENCES AND ABBREVIATIONS

DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. Chassis list prices are F.O.B. Factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Condi-

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost. If it differs from the standard size, dual rear axles are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—all meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

(a) Cab Forward design.
(b) Cab Over-Engine design.
(c) Diesel-engine equipped.
(T) Designed for tractor use only.
(C) Converted Ford or Chevrolet Model.

(2) International Harvester—Specifications shown represent only the basic standard chassis units and standard chassis ratings in keeping with definitions established by Commercial Car Journal. Optional units not shown such as engines, clutches, transmissions, axles or axle ratios, brakes, wheels and

tires, frames or frame reinforcements, optional wheelbases or any other units which make up part of the truck chassis and which International will furnish and approve from the factory as optional equipment can or will change either the ratings, chassis weight shown or performance of the truck as indicated by this list.

Also the company reserves the privileges of assigning special gross vehicle ratings for any chassis providing in the opinion of our engineering department, the type of service justifies the new rating without decreasing the safety factor designed into the truck.

(a) Available with Eaton Two-Speed Axle designated KS Models.

(b) Current models will include, at additional cost, certain items not considered standard equipment. These items are included in the specifications and are listed below—Model K-3, oversize transmission; Model K-6, K-7 and K-8-F, oversize brakes; Model K-8, oversize engine and brakes; Model K-10, oversize engine, transmission and brakes; Model K-11, oversize engine and transmission; Models K-8F and K-11-F, oversize engine and brakes.

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix
BL—Brown-Line
Bu or Bud—Buda
C—Chevrolet
C1 or C1a—Clark
Con—Continental
Cum—Cummins-Diesel
E—Eaton
F—Ford
Fu—Fuller
H—Hutchinson
LH—Lockheed
LW—Lockheed front, Wagner "hi-Tack" rear
N—New Process
N.P.—New Process
O or Ow—Own
Op or Opt—Optional
Shu—Shuler
T—Timken
Tw—Timken-Westinghouse
W—Warner Gear
Wau—Waukegan
Wi—Wisconsin
Ww—Westinghouse or Wagner

BRAKES—SERVICE

Location
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

L—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.
V—Vacuum.

BRAKES—HAND

Location

C—Center of double propeller shaft.
4—Four wheels.
6—Six wheels.

FRAME

Type

C—Channel, tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
TL—Channel reinforced with plate and reinforced with liner.
D—Drop Center.
Tr—Tapered front.
A—Straight section sidemembers, lined with oak inserts.

BRAKE DRUMS

Material

A—Cast alloy iron.
A—American Car Foundry.
C—Cast iron.
Co—Composite.
D—Dayton.
E—Emalite.
G—Gunite.
N—Nickel iron.
Where a combination of any of the above materials is used, the material applies to the front and the second to the rear drums.

Hy—Hypoid.
d—Double bevel axle.
S—Spiral bevel.
W—Worm.
F—Semi-floating.
T—Torque Tube.

Gear Ratios

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods.
T—Torque Arm.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

[illegible]

(Turn to Page 92, Please)



Tire costs slashed — two mountains moved for the price of one

A typical example of B. F. Goodrich development in tires

TRUCKS like this one can move twenty tons of dirt or rock at a clip. But the big tires, costing as much as \$700 apiece, often wore out in a hurry. Bruises and blow-outs took a heavy toll. Some tires lasted only weeks.

Then B. F. Goodrich research engineers developed a new construction principle for tires that had to carry these freight-car loads over rocks and ruts.

They put a *shock-shield* under the tread. It's a special insulated breaker construction that absorbs the shock of impact—reducing the blow that's passed on to the cord body.

The tires shown in the picture are built with this construction. Results in terms of greater tire life are so outstanding that hauling costs are lowered for the companies which standardize on these tires. For example: one check completed early this year showed six B. F. Goodrich tires with shock-shield averaged 4571 hours of service against 1600 hours for another make. This means that more than twice as much earth was moved for the same tire cost.

Another operator reports 17,599 miles compared to 6476 miles for the best of other brands. Another contractor tried three makes of tires; at

the end of the test period 24 out of 70 Brand "A" tires failed, 7 out of 40 Brand "B" failed. Not one of 38 B. F. Goodrich tires failed!

Here is another typical example of how B. F. Goodrich research can help you reduce your tire costs. If you use tires for off-the-road vehicles, trucks, or any other purpose, check the B. F. Goodrich man before you buy again. He can save you money. *The B. F. Goodrich Company, Akron, Ohio.*

Truck Tires BY
B. F. Goodrich

[illegible]

For other than minimum standard WB-10 $1\frac{1}{2} \times 3\frac{1}{2} \times 4$.

For blow-by control, too...



NOT 2...



NOT 6...



but

26

basic designs

OF SEALED POWER PISTON RINGS



Individually
Engineered

THERE'S a lot of talk about the right rings for oil control, but blow-by control, too, is important. In fact, it's one of the four essentials for balanced performance in piston rings. You're sure of ALL FOUR—oil control, blow-by control, low friction and minimum wear—when you use Sealed Power Individually Engineered Ring Sets. Each set is made up from twenty-six (26) basic designs. Whatever the make, model or cylinder wear condition, there's a Sealed Power Set specifically engineered to do the best possible job. Sealed Power has been refining these sets for seven years, has been producing rings for car, truck and engine manufacturers 35 years. For balanced performance, re-power with Sealed Power Motor parts. Sold by leading distributors. Sealed Power Corporation, Muskegon, Michigan and Stratford, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts.

Keep Your Savings Bonds
Get \$4 for \$3!

SEALED POWER PISTON RINGS

BEST IN NEW TRUCKS! ★ BEST IN OLD TRUCKS!

JULY, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

93

Line Number	MAKE AND MODEL	WHEEL-BASE	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES		ENGINE DETAILS				TRANSMISSION	REAR AXLE		FRONT AXLE	BRAKES				FRAME										
					Dual rear S-single rear	Maximum Authorized Load (Duesen-Standard)	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.		H.P. at R.P.M.	Max. Length		Governor Standard	Make and Model	Forward Sp'ds	Make and Model		Drive & Torque	Gear Ratio	Range in High	Make and Model	Location Type	Area	Drum	Material	Hand Location	C-A Dimensions (Min. Std. W. B.)
1	Ford	114	720	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
2	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
3	Chas. Windaid	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
4	Chas. Cab	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
5	Pickup	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
6	Plate	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
7	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
8	Sedan	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
9	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
10	Chas. Windaid	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
11	Chas. Cab	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
12	Stake	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
13	Panel	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
14	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
15	Chas. Windaid	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
16	Chas. Cab	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
17	Stake	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
18	Panel	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
19	Dump Chas. Cl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
20	Dump Chas. W/69U	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
21	Dump Chas. Cl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
22	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
23	Chas. Windaid	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
24	Chas. Cab	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
25	Stake	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
26	Panel	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
27	Chas. Cowl.	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
28	Chas. Windaid	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
29	Chas. Cab	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
30	Stake	114	740	4700	2360	50/16	6.50/16	8-3	239.6	7.180	100-3800	3-34	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
31	Hudson (K.T. Kp)	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
32	Intern'l (2)	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
33	K-1	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
34	K-2	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
35	K-3	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
36	K-4	128	125	4810	2500	6.50/16-6	6.50/16-6	8-35	212.6	6.160	102-4000	3-44	96	3	Own 21C	3	Own 21C	8 1/8	H	H	3-54	Own 21A	OAH	162	264	Co	21M	5.92x15 1/2	CT
37	K-5	128	125	4																									

In the Toughest Going...

No Vapor-lock...

No Fuel Pump Failure

No Engine Gasping for Gas

STEWART-WARNER ELECTRIC FUEL PUMP

- ... operates only when needed
- ... delivers 15 gallons of gas on an average of one ampere of current

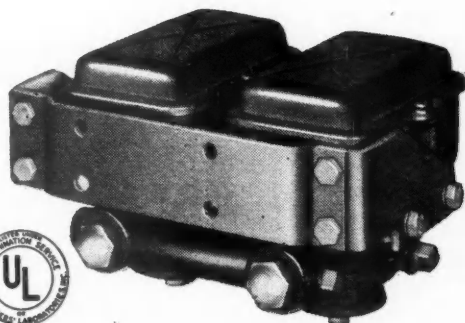
This famous pump doesn't pulsate or "beat itself to death." It actually *pushes* gas to the carburetor—no vapor pocket can possibly form.

It's a longer lasting pump too, because the diaphragm of Du Pont Fairprene simply can't wear out. There are no rotating parts, no piston, no bearings to fail. The contact points are sealed in a hydrogen tube

and operate magnetically. Utterly safe in operation, the pump bears the seal of Underwriters' Laboratories.

Install Stewart-Warner Electric Fuel Pumps as replacements or as auxiliary "safety" pumps for heavy-duty operation. Stewart-Warner Corporation, 1876 Diversey Parkway, Chicago 14, Illinois.

STEWART-WARNER ELECTRIC FUEL PUMP



110-P DUAL PUMP

Dual fuel pump installations are recommended where gasoline consumption is less than 5 or 6 miles per gallon. Each pump in a dual unit may be wired to a separate switch. By using one pump in a dual unit 30% greater fuel delivery will result, the idle unit acts as a booster as well as a reserve pump.

Line Number	MAKE AND MODEL	WHEEL-BASE	TIRE SIZES		Gross Vehicle Weight (See definition)	ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES			C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	FRAME			
			Dual rear S-single rear	Standard		No. of Cylinders	Displacement	Comp. Ratio	H.P. at R.P.M.	Number of Main Bearings	Governor Standard	Make and Model	Forward Sps		Make and Model	Gear and Type	Drive & Torque				Range in High	Make and Model	Location
1	Truckster(C) F18-6	140	7.50/20	10.00/20	4295	7.50/20	10.00/20	6-3	230.6	1.32	100-3800	3-2 1/2 x 1 1/2	N Ford	12 Clm R1300	5F	H 5.67-9.83	5F	578a	TX	355 610a	TX	65 7 1/2 x 3 1/2	CTV
2	(C) F18-6	140	7.50/20	10.00/20	4295	7.50/20	10.00/20	6-3	230.6	1.32	100-3800	3-2 1/2 x 1 1/2	N Ford	12 Clm R1300	5F	H 5.67-9.83	5F	578a	TX	355 610a	TX	65 7 1/2 x 3 1/2	CTV
3	(C) C19-5-0	144	7.50/20	10.00/20	4395	7.50/20	10.00/20	6-3	230.6	1.32	93-3100	4-2 1/2 x 4	N Chev & BL	12 Clm R1300	5F	H 5.67-9.83	5F	578a	TD	355 610a	TD	67 7 1/2 x 3 1/2	CTV
4	(C) C19-5-0	144	7.50/20	10.00/20	4395	7.50/20	10.00/20	6-3	230.6	1.32	93-3100	4-2 1/2 x 4	N Chev & BL	12 Clm R1300	5F	H 5.67-9.83	5F	578a	TD	355 610a	TD	67 7 1/2 x 3 1/2	CTV
5	Ward La Fr. D-1	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
6	(D) D-1	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
7	(D) D-1	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
8	(D) D-2	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
9	(D) D-2	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
10	(D) D-3	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
11	(D) D-3	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
12	(D) D-4	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
13	(D) D-4	149	10.00/20	10.00/20	9500	10.00/20	10.00/20	6-4	427.6	1.32	127-2000	7-3 1/2 x 1 1/2	Y Cum	5 Tim 58415FA	B	R ** -6.14	R ** -6.14	600 928a	TM	68 9 1/2 x 3 1/2	TM	68 9 1/2 x 3 1/2	...
Four-Wheel-Drive																							
14	Corbitt 18FG	Opt	8.25/20	9.00/20	6600	8.25/20	9.00/20	6-4 1/2	330.5	1.24	102-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H ** -6.83	H ** -6.83	578a	TD	355 610a	TD	Opt 8 1/2 x 3 1/2	T
15	(C) 22FG	Opt	8.25/20	9.00/20	6600	8.25/20	9.00/20	6-4 1/2	330.5	1.24	102-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H ** -6.83	H ** -6.83	578a	TD	355 610a	TD	Opt 8 1/2 x 3 1/2	T
16	(C) 25FG	Opt	8.25/20	9.00/20	6600	8.25/20	9.00/20	6-4 1/2	330.5	1.24	102-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H ** -6.83	H ** -6.83	578a	TD	355 610a	TD	Opt 8 1/2 x 3 1/2	T
17	(C) 25FG	Opt	8.25/20	9.00/20	6600	8.25/20	9.00/20	6-4 1/2	330.5	1.24	102-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H ** -6.83	H ** -6.83	578a	TD	355 610a	TD	Opt 8 1/2 x 3 1/2	T
18	Dodge WDX	126	7.50/16	11.00/24	8700	7.50/16	11.00/24	6-3 1/2	230.6	1.15	94-3200	4-2 1/2 x 4	Y NYP	4 Own	HyF	H 4.80-5.83	H 4.80-5.83	210 311 Co	TX	52 5 1/2 x 2 1/2	TX	52 5 1/2 x 2 1/2	DL
19	FWD	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
20	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
21	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
22	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
23	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
24	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
25	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
26	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
27	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
28	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
29	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
30	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
31	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
32	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
33	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
34	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
35	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
36	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06	391 807a	T4	79 9 1/2 x 3 1/2	T4	79 9 1/2 x 3 1/2	T
37	(C) HA	144	7.50/20	10.00/20	17000	7.50/20	10.00/20	6-4 1/2	320.5	1.22	95-2800	7-2 1/2 x 1 1/2	Y Cum	5 Tim 56410H	5F	H 6.6-9.06	H 6.6-9.06</						

TAKE YOUR CHOICE OF THESE TWO IMPROVED SHULER BRAKES!

TYPE S

● **Interchangeable Parts**—Interchangeable with other top-quality brakes. This simplifies service problems.

● **Bolted Brake Lining**—Permitting quick changes and easy, uniform tightening.

● **Hardened Anchor Pins**—Also rust-proofed, lubricated and felt-sealed, require no further lubrication.

● **Needle Cam Shaft Bearings in the Spider**—Lubricated and sealed—no further lubrication required.

● **Improved Brake Drum**—Best design increases life

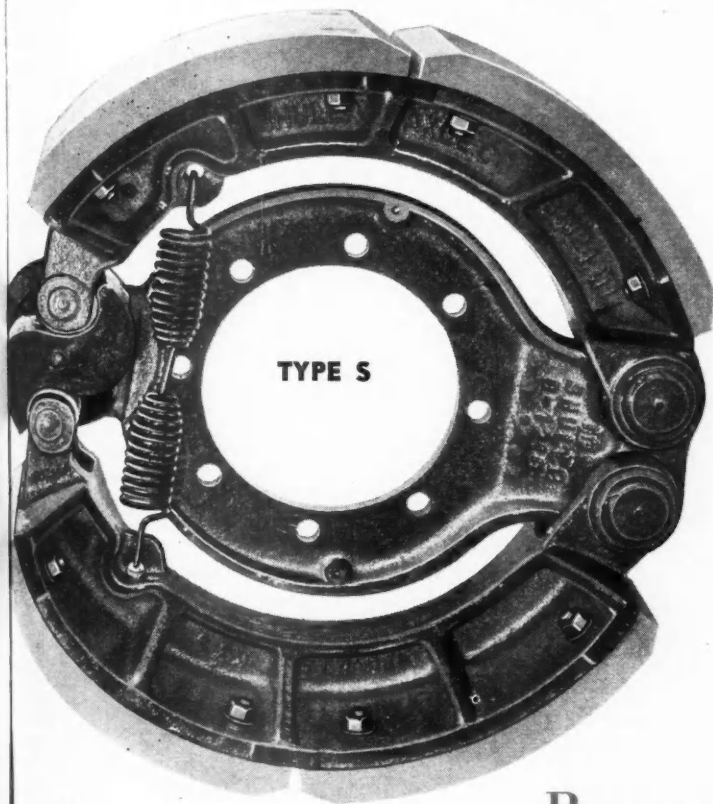
and greatly reduces heat checking. The result of 30 years' experience and development.

● **One-Piece Cam and Shaft**— $1\frac{1}{2}$ " diameter quality steel with hardened cam. Machined to a true involute curve for uniform action.

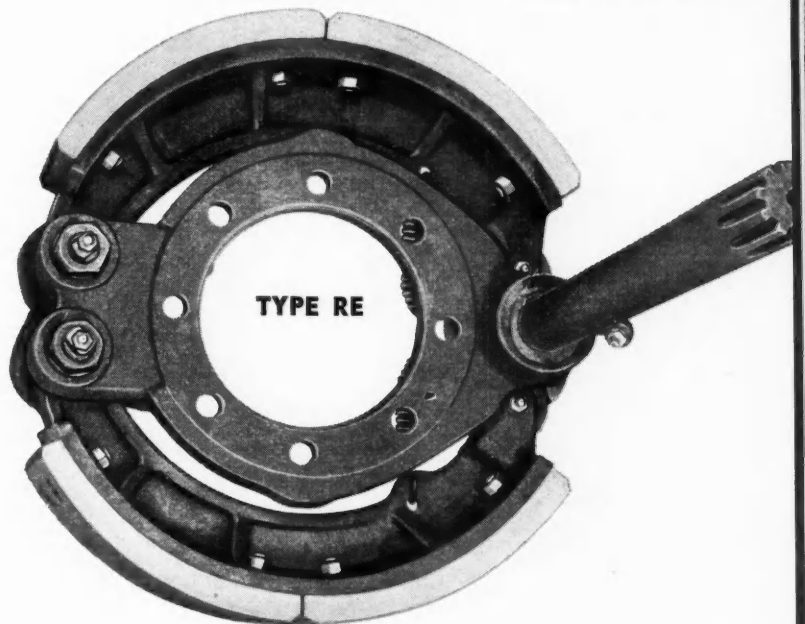
● **Hardened Brake Shoe Rollers and Pins**—Long life—frictionless.

● **Improved Brake Enclosure for Protection**—Removable if desired.

● **Full $\frac{3}{4}$ " Molded Block Lining**—for longer life.



In addition to brakes Shuler also manufactures Trailer Axles (Square and Tubular), Machinery Trailer Axles, Front Axles, House Trailer and Farm Wagon Axles, and Automotive Specialties such as fifth-wheel king pins, tow bar hitches, custom forgings, etc.



TYPE RE

● **Full Lubrication**—Alemite fittings provided for lubrication of the bronze cam shaft bearings, cam roller followers, eccentric anchor pins and cam shaft.

● **Bolted Brake Lining**—permitting quick changes and easy, uniform tightening, anytime, any place, without special tools.

● **Eccentric Anchor Pins**—Adjustable, hardened for long wear (also fully lubricated).

● **Heavier Brake Shoe Rollers**—2" diameter with full lubrication.

● **Heavier Bronze Bearings**—for the cam shaft, instead of needle bearings. Full lubrication.

● **Improved Brake Drum**—Increases life and greatly reduces heat checking. The result of 30 years' development and experience.

● **One-piece Cam and Shaft**— $1\frac{1}{2}$ " diameter quality steel with hardened cam. Machined to a true involute curve for uniform action.

● **Without Brake Enclosures**—for better cooling and easier cleaning.

● **Full $\frac{3}{4}$ " Molded Block Lining**—for longer life.

Retaining the best qualities of our pre-War brakes, and adding several new features developed through years of engineering, research, and highway experience, Shuler has perfected two spectacular brakes which users say are *the best in America*.

Type S, shown at left above, is a top-quality brake for general usage. Type RE is especially designed for West Coast service. Each is a *masterpiece* in its class. Read the descriptions—then write for general catalog and quotations. Address:

SHULER AXLE CO., Incorporated, LOUISVILLE, KY.

Detroit Office: 8424 Woodward Ave. . . Export Division: 38 Pearl St., New York, N. Y. . . West Coast Warehouse: 2937 Ford St., Oakland, Cal.

‡ Includes cab. † Additional speeds with auxiliary transmission.

CCJ Quiz on P. 76

10. a. ODT registration files show that 1,651,220 trucks were employed in agriculture, more than 1 out of every 3 in the country.

The Association of American Battery Mfrs., Inc., Akron, Ohio, has prepared a folder covering data for original battery equipment for passenger cars. This comprehensive information, assembled from data furnished by motor car manufacturers, is assembled in easily-read tabular form and is available to the trade.

WHAT'S THE LIMIT?

William Beebe, in his famous Bathysphere, descended 3,028 feet into the clear waters off Bermuda—farther down than any man had ever gone into the depths of the ocean. How deep can man explore the ocean depths? What's the limit?

IS *Porous Chrome** THE ENGINE-LIFE PISTON RING?

Frankly, we don't yet know! We do know that more than 7,000,000 miles of road tests prove that Porous Chrome multiplies ring life by four—even five! *Cuts cylinder wear in half!* Prove them for yourself—cut maintenance costs—call your American Hammered jobber today! Porous Chrome sets for bus and truck engines are ready now.



Chrome piston rings are an original American Hammered development

* *Van der Horst process*

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

American Hammered Piston Rings

A KOPPERS PRODUCT



SAE SEATTLE MEETING PROGRAM

The tentative program has been announced for the SAE National Transportation and Maintenance Meeting which will be held at the New Washington Hotel, Seattle, Wash., Aug. 22 to 24.

On Thursday afternoon, Aug 22, O. H. Banker of New Products Corp., will present a paper on Automatic Transmissions. A discussion will be carried on by R. E. Thompson of Western Gear Works. During the afternoon a paper on Engines will be presented by J. M. Shoemaker, and a discussion will follow led by Errol Gay of Ethyl Corp.

Friday morning sessions will include a paper on Bearings by R. A. Watson of Federal Mogul Corp. and one on Lubricants, by Dr. C. E. Emmons of Texas Co.

On Friday morning, J. C. Sheasgreen will present material on Logging Trucks, with the following discussion led by J. C. Holmstrom of Kenworth Motor Truck Corp.

MASS. WEIGHT LIMITS UPPED

New legislation passed recently by the State of Massachusetts permits an increase in length of vehicles operating over the highways from 33 to 35 ft. and length of tractor trailers from 40 ft. to 45 ft.

The weight legislation law passed at the same time increases the gross allowable load on single units from 30,000 to 36,000 lb. and on tractor semi-trailers from 40,000 to 50,000 lb. An axle load limitation of 22,400 lb. per axle is set, or in case of axles spaced less than six feet apart, 18,000 lb. The bills were sponsored by the Massachusetts Motor Truck Assn.

FISK ANNOUNCES TIRE SERVICE

Tire distributors should organize their businesses to help the commercial truck operator secure maximum tire mileage, the Fisk Tire division of the United States Rubber Company urged recently in announcing a simplified Fisk mileage service plan for preventive maintenance.

The Fisk mileage service plan is designed to help truck operators secure maximum mileage from their tires and lower the cost-per-mile through preventive maintenance. Based on the inspection and servicing of truck operators' tires by the tire distributor, the plan brings conditions to the attention of the operator before trouble can arise. Under the plan the distributor

assigns a competent inspector to check the fleet constantly. Through periodic reports on the inspections and on mileage service, all the conditions affecting tire wear can be brought to the operator's attention.

DODGE OFFERS FLEET SERVICE

Dodge dealers and their salesmen are being trained in a national program to better qualify them to serve truck users in the selection of the right trucks to meet their hauling needs.

Forty men from the Dodge field organization recently concluded an intensive training program in Detroit under the direction of L. F. Van Nortwick, director of truck sales, and his staff. These men now have the responsibility of training Dodge dealers and salesmen to analyze truck users' requirements so that the user may benefit from trucks that fit their haulage or delivery jobs.

1946 Civilian Truck Trailer Production*

Type	Jan.	Feb.	Mar.	Total
Vans.....	2,777	1,885	2,539	7,201
Insulated.....	153	103	113	369
Refrigerated.....	280	66	100	446
Furniture.....	25	32	14	72
All Other, closed-top.....	2,116	1,624	1,984	5,724
Open Top.....	202	60	328	590
Racks.....	481	464	659	1,604
Cattle.....	266	263	439	968
Stake.....	195	201	220	616
Tanks.....	192	149	150	491
Petroleum.....	75	84	84	243
Other.....	87	65	66	218
Pole and Logging.....	336	382	482	1,200
Single axle.....	247	327	397	971
Tandem axle.....	89	55	85	229
Platforms.....	787	381	646	1,814
Low-bed haulers (over 15 ton).....	163	116	173	452
Off-highway.....	46	37	41	124
Dump.....	39	54	40	133
All Other.....	77	72	88	237
Total—All trailers.....	4,068	3,540	4,816	13,226

*—Latest information available from Bureau of Census, Department of Commerce.

... F. J. HOLLEARN, newly appointed Eastern District manager of Diamond T. Motor Truck Corp. His headquarters will be at Long Island City, N. Y.



ONE-THIRD VEHICLES DEFECTIVE

One out of every three vehicles examined by the nations traffic police during the first 10 days of the Police Traffic Safety Check program failed to meet minimum safety standards.

This report, issued by the International Association of Chiefs of Police which is directing the program, is based upon reports from 23 states which have tabulated early results of their programs which began May 15.

A total of 163,567 vehicles were checked in 23 states between May 15 and May 26. Police found 57,804 vehicles—a total of 35.3 per cent—with defective brakes, tires, lights, horns, windshield wipers, etc.

145,000 SURPLUS TRUCKS SOLD

Total surplus truck sales since V-J Day have amounted to 145,000 out of total declarations of 187,644, according to the War Assets Administration.

These figures, WAA said, are exclusive of jeep sales which have been 6518 since Dec. 1, 1945. Of the total disposals of jeeps, veterans have bought 5501.

Since the beginning of the year, WAA reported, veterans have received approximately 41 per cent of surplus trucks of all types, purchasing 22,788 of a total offering of 51,676. The rest were sold to other priority claimants and qualified dealers.

Inventory figures as of May 15, 1946, disclosed that 40,732 trucks of all types were in surplus.

NAMED MANAGER AT CHEVROLET

Nicholas Dreystadt has been appointed general manager of the Chevrolet Motor Division according to an announcement from the company. John F. Gordon will succeed Mr. Dreystadt as general manager of the Cadillac Motor Car Division.

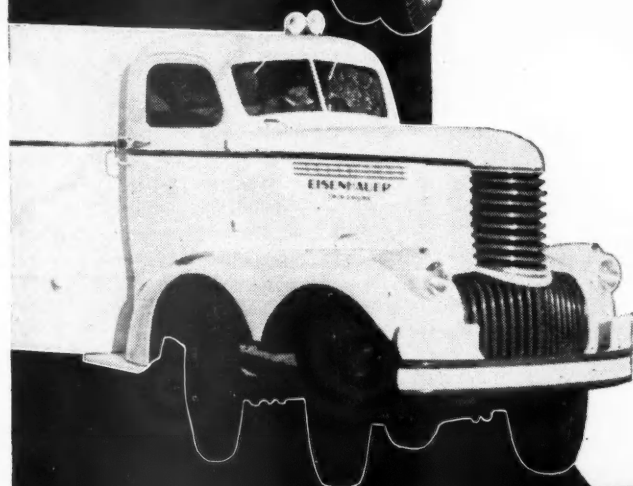
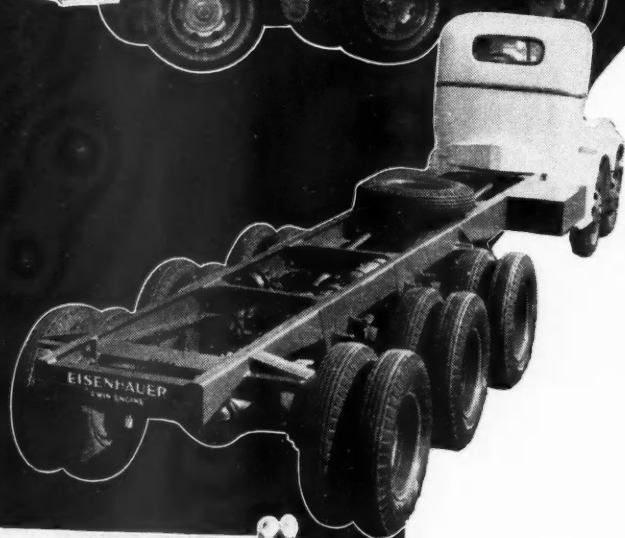
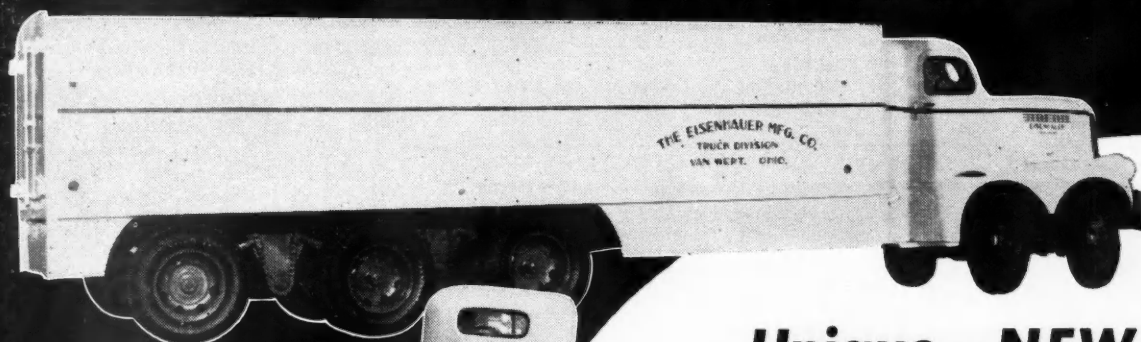
Mr. Dreystadt succeeds M. E. Coyle, who recently was elected an executive vice-president of General Motors to devote his efforts to the general administration of the corporation.

J. A. KRAMER HEADS PMTA

J. Albert Kramer, of Rabiger-Kramer, Inc., has been elected president of the Pennsylvania Motor Truck Assn. Mr. Kramer is chairman of the ATA Contract Carrier Conference and also president of the Philadelphia Chapter of PMTA.

(TURN TO PAGE 102, PLEASE)

2 ENGINES 5 AXLES 20 TONS
and MIDLAND POWER BRAKES



Unique — NEW
EISENHAUSER
Heavy Duty Truck

is

MIDLAND EQUIPPED

ENTIRE AIR SYSTEM FOR BRAKES, SHIFTING OF 2-SPEED AXLES AND LOCKING OF SHIFTABLE AXLE CONTROLLED BY **MIDLAND**

Made from two 1½-ton Chevrolets, this unique twin-engine truck has four front steering wheels, three flexible rear axles, an overall length of 35 feet and a pay-load capacity of 20 tons. The 10-wheel brakes are Midland air-over-hydraulic type.

This same Midland engineering "know how" is at your service in Midland standard air or vacuum power brakes — assuring you efficient, economical service. Consult a Midland distributor, or write to us for complete information about Midland equipment.

THE MIDLAND STEEL PRODUCTS CO.

10605 MADISON AVENUE • CLEVELAND 1, OHIO

Export Department: 38 Pearl Street, New York, N. Y.

Our enlarged plant facilities make it possible for us to consider the manufacture of a few items in household or office appliance, automotive or mechanical fields. We invite inquiries to Midland New Products Dept. at the above address.

MIDLAND
 CHRISTENSEN
POWER BRAKES

CCJ NEWSCAST

(CONTINUED FROM PAGE 100)

BODY ENGINEERS MEETING

The American Society of Body Engineers, Inc., is sponsoring a Technical Convention to be held October 23, 24 and 25, 1946, in the Backham Memorial Building which consists of a Technical Engineering Display by Suppliers of body materials. They will exhibit their latest and most advanced ideas adaptable to automobile bodies.

The purpose of this event is to give men

of the body engineering profession an opportunity to meet professionals in their respective field and to discuss mutual problems as well as to view products, new and improved, which will be displayed. The suppliers' display of body materials and equipment will be of great interest to all persons connected with the body industry, from the president on down to the man in the line.

REO ENLARGES PHILA. BRANCH

Substantial expansion of the Philadelphia Branch of Reo Motors, Inc., through the acquisition of the entire building at 31st and Thompson Sts., comprising upwards of

45,000 feet of floor space, is announced by Don C. Streeter, general sales manager.

The Philadelphia Branch is under the direction of Clem E. Thrash, who is assisted by Charles E. Doling, retail sales manager, and Jos. F. Garrity, wholesale manager.

SURPLUS DISPOSAL EXPEDITED

The War Assets Administration has announced plans for an accelerated selling program which permits surplus war property in vast and various quantities to become more accessible to purchasers.

Within the near future WAA will speed the flow of war surplus to the public through a system of disposal to be described as "sales at site." All priority claimants and small business will be adequately taken care of at these sales.

As another important means of making war surpluses a part of the nation's reconversion pattern, in addition to existing methods, WAA will schedule these sales at site for areas of the country where major quantities of surplus war property are now located. The sales will be put into action as swiftly as adequate mechanical means and manpower can be mobilized.

IHC ANNOUNCES APPOINTMENTS

Major changes in both personnel and structure of the top management of International Harvester Co. have been announced. The changes are a further step in the general administrative reorganization of the company which began two years ago when it adopted the divisional form of organization.

Judson F. Stone has resigned as chairman of the board of directors.

Fowler McCormick, formerly president, has been elected chairman of the board in which capacity he will be chief executive officer of the company, in general and active charge of the business, as well as chief policy-making officer.

John L. McCaffrey, formerly first vice-president has been elected president to succeed McCormick.

W. E. Worth, formerly second vice-president, and P. V. Moulder, formerly vice-president in charge of the Motor Truck Division, have been elected executive vice-presidents.

W. C. Schumacher, formerly sales manager of the Motor Truck Division, has been appointed to succeed Mr. Moulder as the head of that division, with the title of general manager. Mr. Schumacher has made the following changes in top motor truck sales personnel:

L. W. Pierson, who for the past 2 years has been Southwest motor truck district sales manager, has been appointed assistant manager of sales specializing on national and fleet account sales.

R. M. Buzard, who for the past 2½ years has been motor truck district manager of the Western District, has also been appointed assistant manager of sales specializing on operational phases of the business. These men will share with W. K.

(TURN TO PAGE 228, PLEASE)



**"You can't fight a CRASH fire
with GASOLINE!"**

...

Statistically . . . The Average
Fuel Supply Tank in Use Today
Will Bulge or "Explode" at an
Internal Pressure of Less Than
15 Pounds Per Square Inch—

...

**AMERICAN SAFETY TANKS have
exclusive safety features NOT found elsewhere**

WRITE FOR DETAILS

American Safety Tank Co.

UNDERWRITERS LABORATORIES, INC., A. U., 1302

U. S. PAT. NOS. 2090197 & 2268697

KANSAS CITY 8, MISSOURI, U. S. A.

LONG ON LUBES

(CONTINUED FROM PAGE 51)

an analysis of oil before signing another contract. We thus make sure that future oil will be on a par with the oil used in the past. Summer we use a number 30 oil; winters, 20. From time to time, we have used additives but never with success. Possibly something better will emerge from war experience.

Chassis Lubrication a 3-Hr. Job

GREASING is just as important to us as the oil changes and is done along with them. every thousand miles. We employ one man as a greaser and he has to be, and is, a good man. I have let men go without a qualm when I found them doing a poor job of greasing. it's just that important to us. Our grease job is thorough, about 3 hr. to each truck, and not a single thing is missed. Transmission, differentials, rear and front ends, chassis, door hinges, tracks for the sliding doors we use in loading and unloading, are all greased.

At the same time, in going over the truck in this thorough manner,

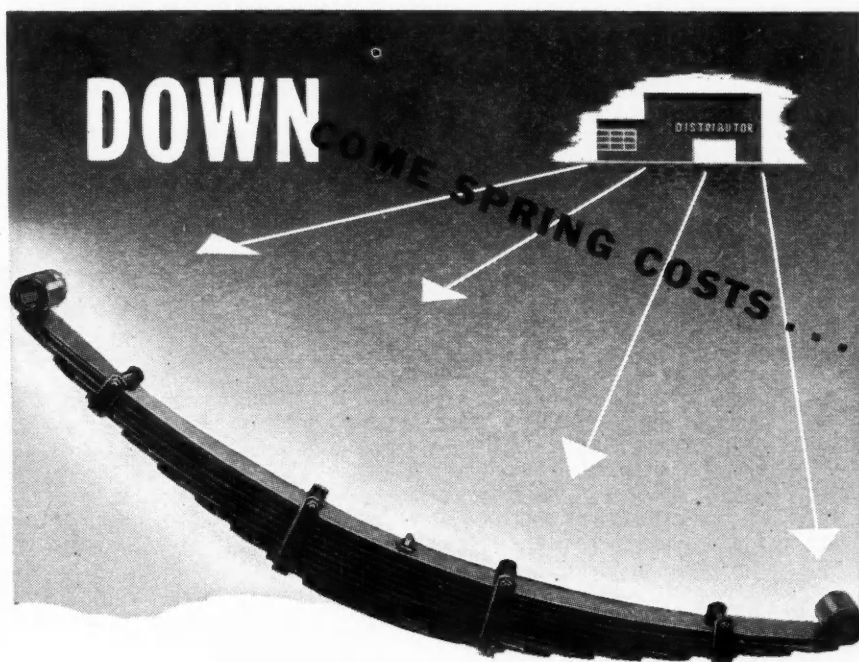
the greaser gives all parts of the truck a fairly thorough inspection and any loose parts or broken parts is mentioned to the foreman. The foreman reports these to me and I immediately make out a Garage Time Slip, Fig. 3, out on them which details the description of work to be done and the materials used.

Blackboard Aids Control

IN MY office I have a permanent blackboard, Fig. 1, that is a valuable fixture in controlling oiling.

greasing and battery work. As the individual truck is greased and oiled at the stated periods, I take the speedometer mileage, add a thousand miles to this figure, and post this number opposite the space reserved on the blackboard for the truck in question. Simply by watching the milage on my twice-a-week check of the Daily Defect Report, I soon reach a point where this figure catches up with the figure posted on the blackboard. At this point, the truck is

(TURN TO NEXT PAGE, PLEASE)



THANKS TO THE SPECIALIZED SERVICE

RENDERED BY ROWLAND DISTRIBUTORS

Call nearest Rowland Distributor. He's supplied by these branches:

ATLANTA 3, Ga., William and Harvey Rowland, Inc., 449 Marietta St., N. W.
BIRMINGHAM 3, Ala., Birmingham Spring Service, Inc., 2017 Avenue B, South
CHICAGO 16, Ill., William and Harvey Rowland, Inc., 2732 Indiana Avenue
JACKSONVILLE 4, Fla., Jacksonville Spring & Alignment Co., 137 Jefferson St.
PHILADELPHIA 30, Pa., William and Harvey Rowland, Inc., 1414 Fairmount Ave.
PITTSBURGH 13, Pa., Point Spring Co., 419 Melwood Street

► Many a fleet operator avoids high maintenance costs by turning over the job of periodic spring inspection to a Rowland Distributor. He learned long ago that spring inspection and repair is a highly specialized job; as well as a short cut to reduced maintenance costs and maintained schedules. Profit by his experience, turn your spring work over to a Rowland Distributor. There are nearly a thousand of them ready to serve and supply you with SPRINGS, mufflers, universal joints and wheel suspension parts. Wm. & Harvey Rowland, Inc., Frankford, Philadelphia 24, Pa.

ROWLAND SPRINGS



SPRINGS • MUFFLERS
 • UNIVERSAL JOINTS •
 WHEEL SUSPENSION PARTS

WHAT'S IT?



YOUR NEW CAR QUITE POSSIBLY WILL COME IN ON A CARRIER LIKE THIS, WHICH IS CALLED A

- ☐ DOUBLE DECKER
- ☐ CARRYALL
- ☐ HAULAWAY
- ☐ PIGGY-BACK

Answer on p. 106

(CONTINUED FROM PAGE 105)

Since our trucks average around 25 miles a day this means that trucks get this service around every five weeks. Through the use of this same

Fig. 3. Garage Time Slip, an 8½ x 5½-in. form made out by fleet superintendent, with a description of work to be done and all necessary materials.

GARAGE TIME SLIP		ON _____
	DATE _____ TO _____	
MILEAGE _____	TRUCK NO. _____	
<small>PREPARE BY THE MECHANIC WORKING ON THE VEHICLE</small>		
DESCRIPTION OF WORK	HOURS	RATE
MATERIAL USED _____		
TOTAL		
<small>MECHANIC'S SIGNATURE</small>		
_____ EMPLOYEE'S O.K.		OFF _____
FORM TTS 1-10-52 P		



Warner Liquid Solder, non-metallic, deposits tiny fibers to repair leaks that

***Send today for your free copy of Warner Cooling System Service Booklet, "Don't Take The Rap." It's offered to you entirely without obligation to help you keep 'em rolling.**

Famous Warner Cooling System Products are Nationally Advertised, Nationally Used



**Send coupon
TODAY for
complete
information!**

Name and position or title

Name of firm

Street

City and State

STANDARD OF PROTECTION FOR MORE THAN 25 YEARS

<h1 style="margin: 0;">Operator's Daily Defect Report</h1> <p style="margin: 5px 0 0 0;">Garage Telephones: Plaza 0409 and Plaza 0624</p>	
Truck No. _____	Date _____ 1944
Time Out _____	Time In _____
<h2 style="margin: 0;">Truck is O. K. except the following Defect:</h2>	
<div style="border: 1px solid black; min-height: 80px;"></div>	
<h2 style="margin: 0;">Did you have an Accident Today?</h2>	
Mileage Out _____	Mileage In _____
Full Cases Delivered - - _____	Full Cases Returned - - _____
Half Barrels Delivered - - _____	Half Barrels Returned - - _____
Quarter Barrels Delivered - - _____	Quarter Barrels Returned - - _____
Eighth Barrels Delivered - - _____	Eighth Barrels Returned - - _____
Empty Cases Returned - - _____	Empty Kegs Returned - - _____
Quarter S. O. D. Delivered - - _____	Quarter S. O. D. Returned - - _____
Eighth S. O. D. Delivered - - _____	Eighth S. O. D. Returned - - _____
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px 10px;">Signed</div> <div style="border: 1px solid black; padding: 5px 10px;">Operator</div> </div>	
<small>NOTE: Operator must make out Defect Card even though truck is in O. K. condition.</small>	

Fig. 2. Operator's Daily Defect Report, a 5½ x 8½-in. sheet on which the driver notes the day's mileages and any truck repairs he thinks necessary

(TURN TO PAGE 108, PLEASE)

● WHAT IS IT?

ANSWER . . . (To Question on p. 105)

These automobile transport carriers are called "haulaways." Over-the-road transport of automobiles is less costly than rail transportation when the distance is less than 400 miles. Above that distance the rail rate is cheaper, but the haulaway has offsetting advantages such as delivery to the dealer's door.

(Another Cartoon Quiz is on p. 108)



HOLDING THE RIGHT TOOLS FOR YOU!

In this great Set, powerful, slim-handled Wrenches and rugged, thin-wall Sockets combine to come thru for you in the toughest spots in heavy-duty automotive service . . . ingenious, special Tools and versatile attachments are right at hand to turn hard jobs easy!

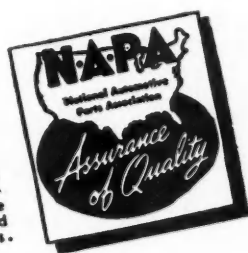
The 151-Piece Assortment No. 6151T, above, is typical of the many other balanced sets in the New Britain Line that put the right Tool at hand at the right time.

There's ample reason for the wealth of knuckle and job insurance in a Set of New Britain Hand Tools: *Careful Engineering* insures its famous versatility; *Precise Manufacture* guarantees rigid quality control; *Accurate Heat Treating* of the finest, selected alloy steels provides extra active strength when and where you need it.

No doubt about it . . . a New Britain Set just naturally holds the RIGHT Tools for YOU! Ask your NAPA Jobber to show you one of these money-making sets—TODAY.

THE NEW BRITAIN MACHINE CO., New Britain, Conn.

The complete New Britain Line for Automotive, Air-Line, General Maintenance, Craft, & Production Needs is sold by leading Jobbers.



New Britain

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

WHERE IS IT?

ON WHICH PART OF YOUR TRUCK WOULD YOU EXPECT TO FIND THE "THIRD BRUSH"...

☐ CLUTCH
☐ GENERATOR

☐ CARBURETOR
☐ BRAKE DRUMS

(Answer on p. 110)



LONG ON LUBES

(CONTINUED FROM PAGE 106)

Those figures appearing on the blackboard under the 500-mile heading are used to check for work on the front-end of the trucks. While this is not a systematic procedure, as in the case of greasing and the changing of oil, it can be said that most of our trucks do get front-end attention at one time or another in the month. This front-end work consists of an examination and greasing of steering apparatus, spindles, a check of radius rods and an examination for tire wear as well as for toe-in.

Mechanics Drive Trucks Nightly

A LITTLE procedure that keeps us well informed as to fleet operating condition is the fact that our mechanics drive the trucks a good deal more than is the case with most fleets. And as they drive they keep eyes and ears open for signs of trouble. Mechanics drive the trucks up to gas pumps nightly; after gas-sing they drive them to the parking yard. This may be a small matter, but you have no idea how significant the results are in our fleet maintenance since these short runs are quite sufficient to give our mechanics a first-rate idea of the mechanical condition of every truck. These little drives, together with the greaser's inspection, seems to be giving our fleet ample protection.

Eighty per cent of all repairs are done in our own shops. We do all motor overhauling with the exception of rebor-ing and crankshaft grinding. We fit pistons, rods, grind and reseal valves, do body work, etc.

In all of our maintenance and repair program we carefully weigh the costs of doing work ourselves against the costs and results by sending it out. We send some of our work out all of the time feeling that we get, perhaps, a better job and at less cost. We have never felt, for instance, that at a mechanic's wages, \$1.50 per hour, that we could afford to use our mechanics' time on the repair of such items as starters, generators, fuel and water pumps. We would much rather use an exchange service on these parts and keep our mechanics free for major repair work. If time

(TURN TO PAGE 110, PLEASE)

"Tops"

FOR FAST • SAFE • PROFITABLE TUBE REPAIR SERVICE

- Used by Over 75,000 Service Stations
- Approved and Recommended by All Leading Tire and Oil Companies

12 BIG ADVANTAGES

*** STRONGER REPAIRS**
Fills, reinforces, vulcanizes the tube injury completely safe. No failures.

*** NEATER REPAIRS**
A smooth feather-edge repair every time.

*** NO FIRE HAZARD**
Safe. Carries the seal of approval of the Underwriters' Laboratories.

*** NO SMOKE OR FUMES**
Clean electrical operation.

*** AUTOMATIC**
Automatic shut-off controls time and temperature of vulcanization. No guessing.

*** HANDY**
Patch and Valve Stem Units come ready-prepared. No waste—easy to inventory.

*** FASTER**
Completes repair in quickest possible time for perfect vulcanization.

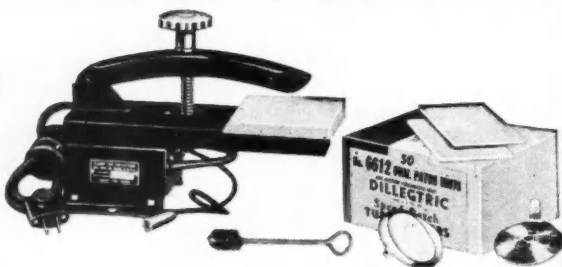
*** COMPLETE**
Handles all types of repairs in all tubes—synthetic or natural rubber.

*** LOW-COST REPAIRS**
Dillelectric Patch Units cost less than 4c each.

*** ATTRACTS CUSTOMERS**
Car owners know electric vulcanizing is best—are impressed with Dillelectric.

*** USED BY OVER 75,000 STATIONS**
No. 1 in tube repair service.

*** RECOMMENDED**
and approved by all leading tire and oil companies.



Check these outstanding advantages of Dillelectric. No other means of tube repairing provides so many desirable features. That's why Dillelectric will benefit your business just as it is now doing for more than 75,000 service stations. You'll like Dillelectric. It is so simple, so fast, so sure. In just a few minutes you can complete a beautiful, guaranteed repair of any type injury—in either synthetic or natural rubber tubes. No guesswork—no failures. Switch to this speedy, profitable, safety service today. A postal card request will bring you full details.

THE DILL MANUFACTURING CO.

700 East 82nd St., Cleveland 8, Ohio
Branch—1011 S. Flower St., Los Angeles 13, Cal.

DILLELECTRIC

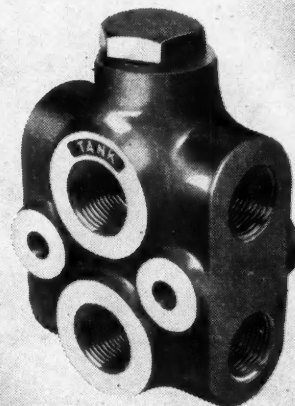
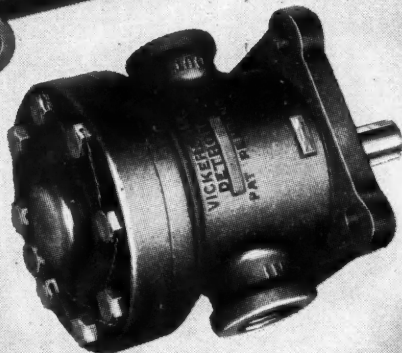
Electrically VULCANIZED
TUBE REPAIRS

INSTRUCTION
MANUAL, FREE

**VICKERS POWER
STEERING BOOSTER**



**VICKERS ENGINE-DRIVEN
VANE PUMP**



**VICKERS OVERLOAD
RELIEF VALVE**

RUGGED...

Another Feature of **VICKERS** HYDRAULIC POWER STEERING SYSTEM

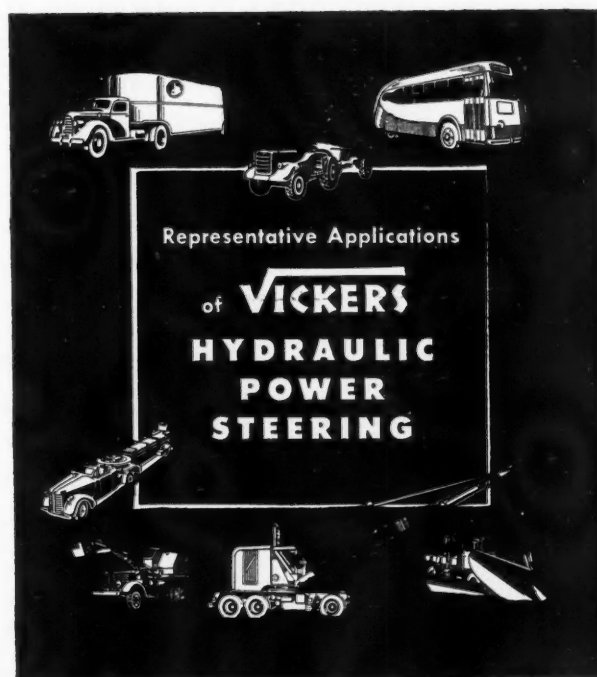
Providing effortless, positive, and shockless steering of even the heaviest vehicles, Vickers Hydraulic Power Steering has been in use under the most adverse operating conditions for the last 14 years. The hydraulic system is protected against overload by the relief valve which limits the maximum hydraulic pressure of the system. The pump and booster are thus protected against damage from excessive pressure and the linkage system from abuse. With Vickers Hydraulic Power Steering, road shock thrusts are transmitted to the frame of the vehicle instead of to the steering gear.

Among the many other advantages of Vickers Hydraulic Power Steering are: greater driver efficiency by reducing fatigue to a minimum, easy application to existing chassis designs, wheel "fight" is impossible, greater road safety, and automatic lubrication. Ask for new Bulletin 44-30 for all the facts about the Vickers Hydraulic Power Steering System.

VICKERS Incorporated

1418 OAKMAN BLVD. • DETROIT 32, MICHIGAN

Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT
LOS ANGELES • NEWARK • PHILADELPHIA • ROCHESTER • ROCKFORD
TULSA • WORCESTER



LONG ON LUBES

(CONTINUED FROM PAGE 108)

hangs heavily on their hands, there always is plenty of routine work for them that can't be done outside very conveniently—such as checking air pressures and inflating tires, changing oils, checking batteries, etc.

Tire Maintenance Procedure

TIRES have been a constant consideration with us. Before the

war and through the war, we have used recaps and find them excellent for our city driving purposes. We average from 8000 to 10,000 miles and, since we recap from four to five times, feel that we are getting our money's worth. We put recaps on any wheel. Tires are recapped when, in our estimation, they need it; which simply means that we leave sufficient body on the tire to allow a good recap.

We use a leveling stick for match-

ing all duals, visual judgment for matching single tires. We may put two recaps side by side, two new tires, but never put a new or recapped tire next to an old one.

Tire pressures are checked every week, starting the assigned mechanics on them Friday afternoons and working through Saturday. Of course, tires come in for constant inspection at all times, although we may not use an air gage every time.

On inflation days, once per week, we inspect all tires for rub, tear and dig out imbedded foreign matter using a little steel pick.

When tires get too bad for recapping, we brand them "000" signifying that they are to be used until they blow. Don't throw your tires away too quickly. We have one such tire that we confidently expected would only last a month but it is still running after four months.

We do plan on buying new trucks, of course. I can suggest one improvement as far as brewery trucks are concerned and that is the three-man cab. Our trucks need these because they carry a three-man crew most of the time.

My own suggestion for truck seats is for one long seat sufficient to give each of the three men we need on the truck at least 24 in. of room per man. Aside from these added dimensions we find the present truck cabs quite satisfactory in all other respects. These seat dimensions would not necessarily apply to trucks operating out of the city but it is necessary, in our opinion, for our city trucks.

We will, of course, continue to have bodies built to our own specifications as we did prewar.

END

(Please resume your reading on P. 52)

● WHERE IS IT?

ANSWER... (To Question on p. 108)

On the generator. The third brush regulates the output of the generator, preventing the battery from overcharging and the electrical system from overloads.

(Another Cartoon Quiz is on p. 112)

NEAPCO

UNIVERSAL JOINTS & PARTS

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CORRECTLY DESIGNED

ACCURATELY MANUFACTURED

STRATEGICALLY WAREHOUSED

UNEQUIVOCALLY GUARANTEED

NEW ENGLAND AUTO PRODUCTS CORP'N.




POTTSTOWN, PA.



Soft Pressure does it...

Oil control is easy and positive with *soft pressure* Steel-Vents. Long life is assured, too, by the employment of steel segments held firmly but gently on the cylinder walls.

That's why so many Hastings Steel-Vent "motor engineered" sets are being installed in rebores and re-sleeves as well as in extreme tapers.

HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN • Hastings Ltd., Toronto

New Radio Show

"RIGHT DOWN YOUR ALLEY"

Coast-to-Coast

American Broadcasting Company

EVERY SUNDAY AFTERNOON

4:30 Eastern Daylight Time

3:30 Eastern Standard Time

3:30 Central Daylight Time

2:30 Central Standard Time

1:30 Mountain Standard Time

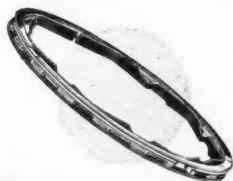
12:30 Pacific Standard Time

SOFT PRESSURE DOES IT — IN REBORES, TOO

Seven years of Steel-Vent satisfaction stand behind this testimonial from a large trucking and warehouse company: "We operate 103 pieces of equipment and have used Hastings Steel-Vent sets for over seven years in re-ring and rebores jobs with gratifying results. Steel-Vents give us longer life and less cylinder wall wear."

HASTINGS STEEL-VENT PISTON RINGS

U. S. PAT. 2,148,997



TOUGH ON OIL-PUMPING **GENTLE** ON CYLINDER WALLS

SMOOTH MAINTENANCE

(CONTINUED FROM PAGE 50)

Can you tell which of the two trucks shown has run 5000 miles and which has run over 100,000 miles? In case you're in doubt, the "Metro" job, Fig. 4, is the older model. Driving them wouldn't help in judging the mileage. Both run equally well, except for the obvious stiffness of the newer model. And there are other trucks around the shop with better

than 300,000 miles still going plenty strong.

Shop Well Equipped

NEXT in importance comes the inventory of shop equipment, which is remarkably complete, though not extraordinary, in that each of the items may be found in many shops, though seldom all together in a fleet of this size. The one exception is a boring bar which Papas swears paid for itself completely in exactly 22 months. Other major

pieces of equipment are a large permanently-mounted overhead crane, two general purpose lathes (one small and new, the other good sized and older but still in fair condition), two drill presses, a bench grinder, a valve seat grinder (refacer on order), a vacuum gage, a compressor gage, a ridge reamer, slow and fast battery chargers, an arbor press, a power buffer and sander, electric and acetylene welder (the latter with its own gas generator and mounted on shop-built portable stand), two garage jacks, a transmission jack, electrical test stand, lubrication lift, cleaning tank, a flush roller type toe-in gage, a brake riveter and the inevitable air compressor piped to all areas of the garage.

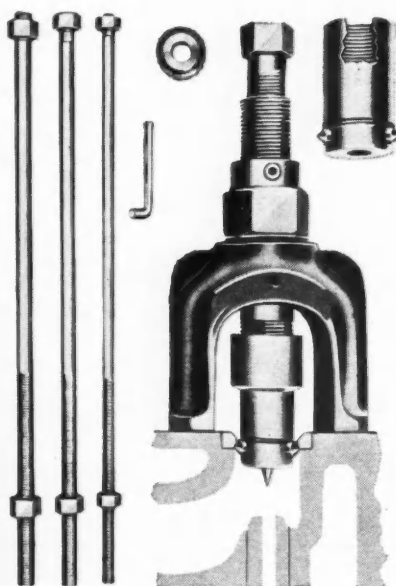
Minor Maintenance

LIKE all good operations, Malbis' maintenance begins with minor details. A mimeographed sheet at the gas pump, located at the rear of the building, provides space for entry of gasoline and oil added to each vehicle daily and for speedometer readings. Each evening before leaving the shop Mr. Papas uses this "pump sheet" to schedule vehicles to the lubrication lift on a

(TURN TO PAGE 114, PLEASE)

**PULL VALVE
SEAT RINGS and
VALVE GUIDES
EASILY
QUICKLY
SAFELY
with the NEW**

**BISHMAN
VALVE SEAT RING
and VALVE GUIDE
PULLER**



No more risky, damaging, time-wasting prying or hammering. Just set the BISHMAN PULLER on the motor block as shown above, turn screw to set 3 hard sharp points under the ring, then turn large nut with wrench to pull out the ring. Both puller sets, plus #810A Head, will service all car, truck, tractor and bus engines having valve insert rings with inside diameter of from $\frac{15}{16}$ " to $3\frac{1}{4}$ ".

Pull Valve Stem Guides without taking out motor. Use same fixture; it has a hollow center through which to slide pull rods. Each Puller Set packed complete in steel box with two extra sets of points—a great time-saver and man-saver.

No. 810 set, for rings $1\frac{1}{8}$ " to 2"

No. 811 set, for rings 2" to $3\frac{1}{4}$ "

No. 810A, Small Head only, for rings $\frac{15}{16}$ " to $1\frac{1}{8}$ "

ASK YOUR JOBBER or WRITE US

BISHMAN MFG. CO., OSSEO, MINN.

BISHMAN



WHICH IS IT?

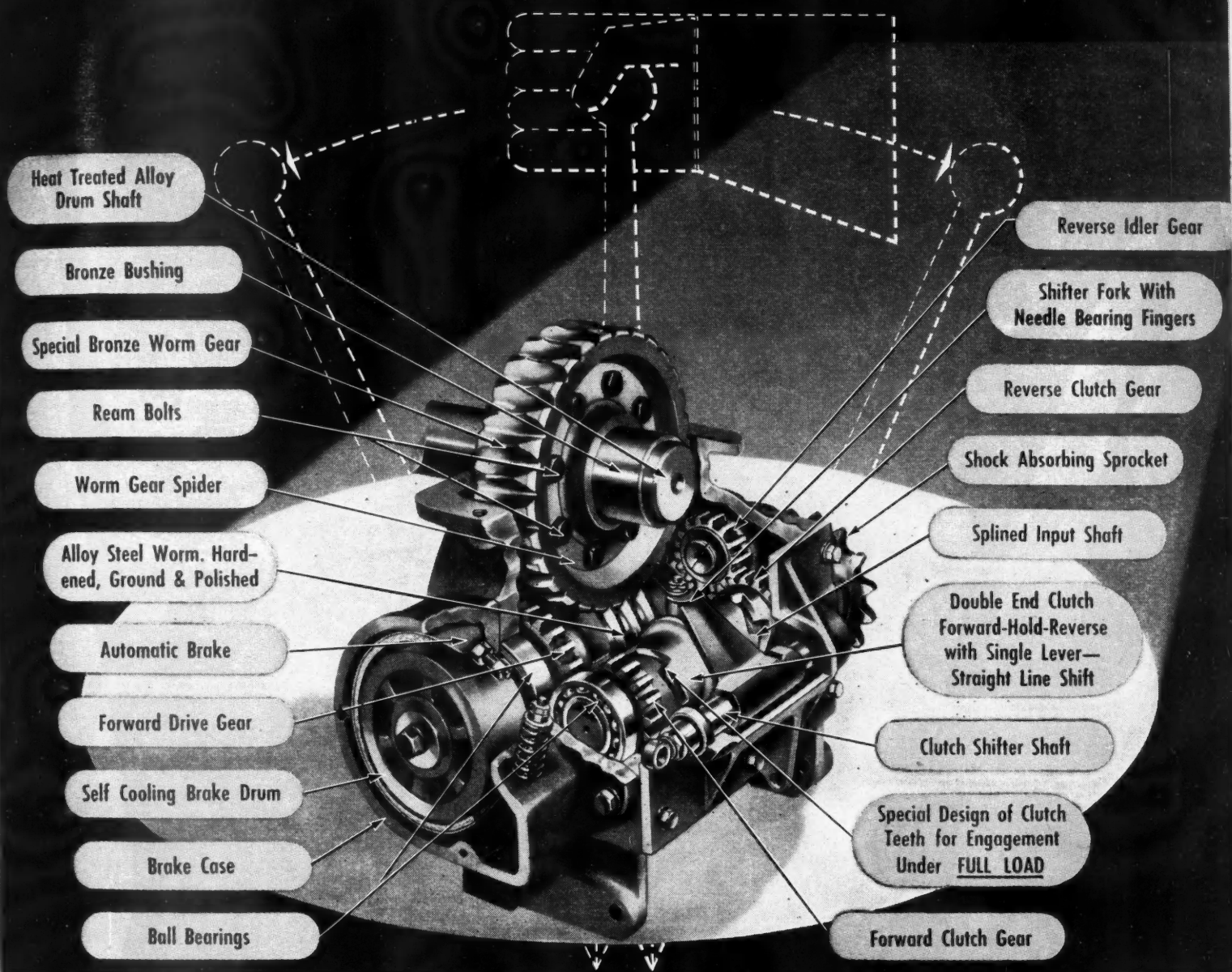


EXHAUST VALVES MUST HAVE UNUSUAL RESISTANCE TO HEAT AND SO THEY ARE OFTEN MADE OF SILCHROME STEELS, WHICH ARE SPECIAL ALLOYS HIGH IN CHROMIUM AND...

- ☐ GERMAN SILVER
- ☐ TRUE SILVER
- ☐ SILICON
- ☐ ASBESTOS

Answer on p. 114

Advanced Engineering Features of the GAR WOOD **RAPID REVERSE** WINCH



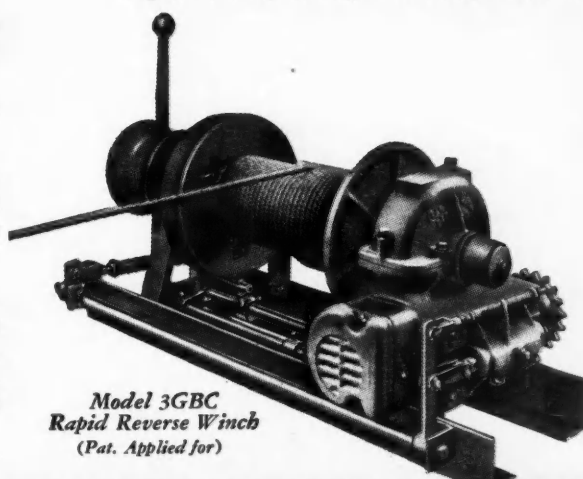
Exposed view of the Rapid Reversing Mechanism

Wherever Industry Needs A LIFT

The inbuilt rapid reverse mechanism, designed by Gar Wood engineers, is the greatest development in truck winches in the last 20 years.

This exclusive reversing mechanism provides complete and instant winch action—hoisting, holding, or paying out is done under full load without declutching the engine or power take-off. The single lever control may be mounted in the cab, on the winch or at the rear.

Three point flexible mounting prevents distorted shafts or cramped drums. Oversize shaft is carried on spherical, self-aligning bearing . . . Worm shaft is ground to exact size and polished . . . Gear teeth are hardened and shaved. The drive is by heavy duty power take-offs, either single or two forward speeds. Gar Wood traditional high quality is maintained throughout, and long life and trouble-free operation are assured.



GAR WOOD INDUSTRIES, INC.

WINCH AND CRANE DIVISION DETROIT 11, MICHIGAN

WORLD'S LARGEST MANUFACTURERS OF TRUCK AND TRAILER EQUIPMENT

OTHER PRODUCTS: Hoists • Bodies • Tanks • Road Machinery • Heating Equipment • Boats



SMOOTH MAINTENANCE

(CONTINUED FROM PAGE 112)

basis of approximately 1000-mile intervals. He also indicates whether crankcase, transmission or rear-end are due for drain.

At approximately 5000-mile intervals each vehicle goes into the shop for a few hours of preventive maintenance checks, which include front-end alignment, engine tune up, brake adjustment, front wheel bearing

packing and chassis and body tightening. Since the fleet is relatively small and all mechanics are thoroughly familiar, not only with the trucks but also with the company way of doing business, no check list form is used.

In between these periodic checks, drivers are constantly urged to air complaints concerning vehicle operation. For this a little pad of driver reports is kept handy. Complaints are usually handled immediately, but if extensive work is required, the ve-

hicle is scheduled into the shop at the earliest possible moment.

The tireman makes a daily check of all vehicle tires for cuts, bruises and slow leaks. It is also his responsibility to make sure that pressure is checked at least once a week. In addition, he completely paints an average of one truck every two weeks and handles touch-up work as needed. Sign painting is done by a specialist who is brought to the shop when needed, and Papas himself usually handles the effective "decals" which are preserved after application by a coat of clear shellac.

Major Maintenance

WHEN it comes to major maintenance Mr. Papas and his two assistants really pitch in. At least one spare engine, transmission and rear-end are kept in stock for each model the fleet operates. If internal trouble occurs in these major units the whole business is usually yanked out and a spare substituted to get the truck rolling in a hurry. As most engines in this fleet are relatively easy to remove, they are often pulled even for a valve and ring job. The shop believes that the efficiency gained by working on a clean engine in a handy stand more than offsets the time lost in removal. It also provides a good opportunity to check all the accessories.

With its own boring bar, reboring is a cinch for this fleet as is the process of relining the sleeve-type jobs. Only crankshaft grinding has to be farmed out, as far as engine work is concerned.

Also farmed out are major body repair jobs (the shop handles its own minor repairs with power buffer, sander and welding equipment), frame straightening and complete front-end alignment (about twice a year). Surely, that's a small list of items requiring outside help for a fleet of this size.

END

(Please resume your reading on P. 51)

● WHICH IS IT?

ANSWER... (To Question on p. 112)

Silicon and chrome are the alloying elements in "silichrome" steels.

(Another Cartoon Quiz is on p. 116)



FIRST because it LASTS...

It's the Oilier H-D Oil!

AMALIE H-D — the complete heavy-duty oil — refined from 100% Pennsylvania crude, offers the advantages of AMALIE straight-run refining plus all important heavy-duty characteristics: It has the necessary detergent quality to cleanse and wash away carbon... its anti-oxidant action resists varnish and sludge formation... its strong, tough, corrosion-resisting film — 20% oilier by test — stands up under toughest operating conditions.

Standardize on AMALIE H-D for heavy-duty fleets and Diesels; and remember AMALIE Pennsylvania Motor Oil (regular) and AMALIE

Lubricants for light trucks and cars. See your nearest AMALIE Distributor, or write Dept. J7.



AMALIE DIVISION
L. SONNEBORN SONS, INC.
 88 LEXINGTON AVENUE, NEW YORK 16, N. Y.
 Refineries: Petrolia and Franklin, Pa.
 Plant: Nutley, N. J.
 In the Southwest: Sonneborn Bros., Dallas 1, Texas



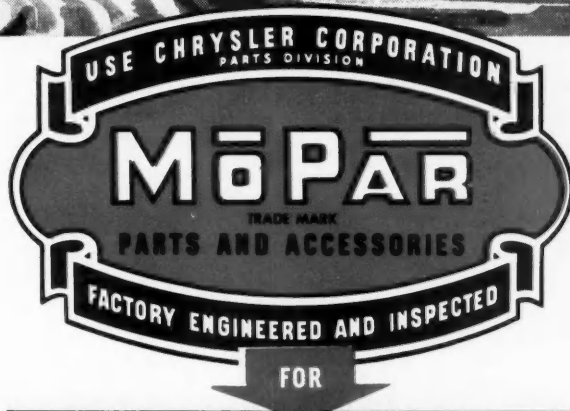
"Give 'em what they want, Mister"

Car and truck owners, too, know what they want.

When it comes to replacement parts for their vehicles, they want parts performance that measures up to the high standards originally set by the vehicle manufacturers' engineers.

That's why it pays off in more customer good will when you install *MoPar* factory engineered and inspected parts in vehicles built by Chrysler Corporation Divisions. You give better service . . . and better please your customers.

NOTE TO ALL REPAIR SHOPS: If you need parts of any kind for a Plymouth, Dodge, De Soto, or Chrysler, obtain them from a dealer for these vehicles. For Dodge truck parts, see a Dodge dealer.



Plymouth

DODGE

DeSoto

CHRYSLER

DODGE *Job-Rated* TRUCKS

CHRYSLER CORPORATION—PARTS DIVISION, DETROIT 31, MICHIGAN

SMALL SHOP PLAN

(CONTINUED FROM PAGE 53)

side by side. This makes it only a matter of straight driving to get out, regardless of whether the tractor is connected to trailer, or whether it has been headed in to one of the workbenches or parked on the grease rack. Three doors in the back also permit parking a unit most anywhere on the floor, even moving up portable benches and tools to work on it, and

still permit traffic to flow through the shop by driving around it.

A unit going to a workbench for mechanical work drives in at the main entrance and heads into the bench and shop area by turning to the left. This permits other units to enter and go to either of two wash-racks, or go to a two-post, hydraulic floor-recessed lift for greasing or inspection. For tire service, a unit stops along the right-hand wall. This permits the continuous flow of traffic and no units are blocked.

The building is 47 ft. wide, 100 ft. long and, while space is ample for our operation, there is not a foot wasted. We can put all our equipment inside under cover, if necessary.

Stock Storage in Rafters

THE building is of masonry construction with a truss roof. There are no supporting posts and a space of 16 ft., 8 in. to the trusses provides plenty of headroom. We utilize much of the space in the rafters for storage. Seasonal items, such as anti-freeze, and stocks that are considered reserve are stored in this ceiling space on shelves above the shop side. On the other side we built an elevator-type tire rack, which normally rests in the ceiling space but which can be lowered to the floor when needed.

This elevator-type rack is 12 ft. long and 4 ft. wide and will hold about 12 casings and a couple dozen tubes. Here we store our normal stock of new casings, repaired casings and retreaded casings.

The rack is guided by steel retaining rails flat against the wall and it is easily raised and lowered by means of a chain hoist. Use of a chain hoist (TURN TO PAGE 118, PLEASE)



AN UNUSUAL SERVICE

for

TRUCK DESIGNERS • BODY BUILDERS • MAINTENANCE MEN



This Eberhard Catalog comprehensively illustrates and explains the complete line of fittings for EVERY TYPE OF BODY.

- Eberhard has anticipated your needs for new truck hardware in hundreds of varied items of assorted types and sizes.

Take advantage of our "Unusual Service" and meet our experienced "man in your neighborhood"

He will sit down with you and make recommendations that will simplify your designing and lower your costs. Drop a line to Eberhard today for Catalog No. 13.



EBERHARD

TRUCK BODY FITTINGS

Long Run



EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co. 2734 TENNYSON ROAD CLEVELAND, OHIO

WHAT IS IT?



A "GROWLER" IS AN APPARATUS FOR TESTING

- ☐ ARMATURES
- ☐ BRAKES
- ☐ HEADLAMPS
- ☐ FRONT WHEEL ALIGNMENT

Answer on p. 118



PATCHWORK PETE

Oil is oil s'long
as it's slippery,
I always sez.

Phooey! Pete put 'um
cheap oil in rebuilt
engines, lose 'um
plenty big wampum
customers!

Better wise up, Pete!
If you want to protect
good parts and good
workmanship, you'll
finish the job right by
filling the crankcase
with Thompson Aero-
type Break-In Oil.



PEE WEE



T.P. TIM

AS MAKERS OF high precision replacement parts, we know how important it is to protect engine parts during the critical breaking-in period. That's why Thompson Aerotype Break-In Oil was developed — to insure correct lapping in of new parts—by preventing abrasive friction, scuffing and scoring.

Thompson Break-In Oil is refined from a pure paraffinic base, with patented compounds added to maintain a constant, protective film over high-finish surfaces under heat, and also inhibit formation of hard carbon, "engine acids" and sludge. *It is not an additive . . . you fill up the crankcase!*

Use Thompson Break-In Oil to protect your own good work, give your customer better results, and make an extra profit in the bargain.

Insure New Car Performance, Too

Thompson Aerotype Break-In Oil is the best insurance a NEW engine or a REBUILT engine can have during the running-in period. Close fitting parts in modern high-compression engines need the extra protection that Thompson Break-In Oil provides. It is also a superior "regular service" oil for fleet and other heavy-duty operation.

Get it from Your

Thompson

Products

CLEVELAND • DETROIT • LOS ANGELES

Distributor

SMALL SHOP PLAN

(CONTINUED FROM PAGE 116)

makes it possible to stop the movement of the rack at any point, to leave it unattended with safety.

Drivers' Weather Time-Loss Cut

ANOTHER condition we have remedied is the necessity of sending drivers home in winter on days when we consider the roads too hazardous due to ice or other conditions. Sched-

ules have been suspended two and three days in a row and, under our old system, the drivers lost this time.

Now before someone speaks up, I might mention that all of our drivers can drive on icy and slick roads and, if needed, they can keep going long after the postoffice trucks and ambulances quit, and when most of the highway patrol are sitting by the fire. But we take the position that we are not carrying serum by sled dog to a stricken orphan who somehow has wandered up above the

arctic circle. By proper arrangement of schedules, we can keep our deliveries made and terminals supplied so that we can conserve life, limb and equipment when roads are hazardous.

Now it is one thing to keep a driver off the road—and intact so his family can enjoy him in his old age—but he likes a regular job with work every day and that was the only thing wrong with our safety plan.

Now, on such days, drivers will be allowed to work in the shop under my direction or the shop foreman. This will be at their own volition. Most of them have already told us that they will like the idea.

While many of our drivers are skilled in things mechanical, we will prefer that they maintain their status as drivers and, when they come into the shop, to come as helpers.

Much of the time he will be allowed to help work on his own equipment. There are many things which he can do. For example, if it is a general overhaul job, he can do much of the dismantling and cleaning of parts and help put them back.

He will be able to tighten loose accessories—rear view mirrors, spare tire carriers, ICC equipment, tool boxes; in fact, there are always many chores about a driver's unit that never seem to get done and this will be an ideal time for it. I may arrange a regular inspection schedule.

If the helper manpower becomes surplus as in extremely long stretches of bad weather, there is shop cleanup to be done, painting, cleaning up equipment and a housecleaning that will rid the shop of wornout parts that have been removed. We can also give a better check to tires at such periods.

Equipped for Efficient Work

IN THE shop, everything in the way of equipment has been bought that will increase efficiency and cut down wasted time. Work benches, for example, are movable. Four

(TURN TO PAGE 120, PLEASE)

● WHAT IS IT?

ANSWER... (To Question on p. 116)

A "growler" is a special tester for testing armatures for short circuits.

(Another Cartoon Quiz is on p. 120)

Make Truck Tire Changing a ONE-MAN JOB!

The **TED**
TIRE CARRIER
sets the pace in

- ★ Convenience
- ★ Safety
- ★ Efficiency

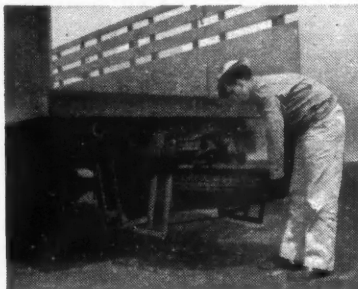


Push handle back and it's loose. An easy pull and the tire is out from the carrying position and standing on the ground... a one-man operation that makes truck tire changing as simple as on a passenger car.

Two models to carry any size tire from 600-20 to 1100-22. Easily mounted on any truck or trailer. Carriers can be mounted on either side or rear, whichever is most convenient on your rig. Easy to mount on chassis or body.



Rear mount — in carrying position rides high, giving full road clearance.



Rear mount — extends forty-two inches to clear any truck body.



The whole operation is completed without lifting or strain.

Write for free literature



TED CORPORATION

928 So. Flower St., Los Angeles 15, Calif.



Biggest "egg beater" you ever saw!



ONE DAY I was sniffing around in the American Brakeblok plant and I ran smack into the biggest "egg beater" you ever saw.

Naturally, I stuck around, figuring there might be something to eat.

"Looks like you're mixing a cake," I said hopefully to one of the fellows.

"No, Stopper," he answered. "We're making brake lining."

"Nuts," I said and started to trot off, but he grabbed my collar and explained some things.

Making dependable brake lining is about twice as fussy as mixing a cake! Material is weighed out to the ounce and then gets *three* separate mixing operations—one of them in these big "beaters." All operations are electrically timed so there is no chance for under or over mixing.

That follows American Brakeblok's policy of manufacturing the *best brake lining that can be made*—a policy that applies whether the lining is for a passenger car, truck or bus.

That's why American Brakeblok is recognized as a superior lining by the motoring public, dealers, manufacturers and fleet operators.

Count on American Brakeblok for brake lining in the correct size and with correct frictional properties for all makes and models of cars, trucks and buses—for all types of brake systems.



Distribution through 38
NAPA Warehouses



AMERICAN BRAKEBLOK DIVISION, DETROIT 9, MICHIGAN



WHAT'S COMING?

YOU'LL BE ABLE TO
HAVE TIRES OF ALMOST ANY
COLOR IF THE "CARBON BLACK"
IS SUBSTITUTED WITH....

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> CARBON WHITE | <input type="checkbox"/> COAL TAR |
| <input type="checkbox"/> ALUMINUM OXIDE | <input type="checkbox"/> ANILINE DYES |

Answer on p. 123



contents

Refrigeration KNOW-HOW

The new Kold-Hold Catalog is a book of benefits and savings. It contains refrigeration know-how . . . information relative to the better storage and transportation of perishable products at lower costs. This catalog shows that Kold-Hold Serpentine Plate Type Evaporators have no equal in efficiency and dependability for locker plant space cooling, for shelves and stands in sharp-freezing or as cabinet liners, shelves or dividers. It explains how "Hold-Over" Plate Type Evaporators maintain the temperature of delivery bodies at the uniform level necessary in the successful transportation of fresh meat, ice cream, frozen foods and other perishables.

If you are interested in better storage and transportation of your products, write for this new free book of refrigeration knowledge today.

KOLD-HOLD

KOLD-HOLD MANUFACTURING COMPANY
620 N. GRAND AVENUE LANSING 4, MICHIGAN

SMALL SHOP PLAN

(CONTINUED FROM PAGE 118)

benches were made locally of wood construction with steel tops. They are 24 in. wide, 30 in. high, 72 in. long, and have two drawers for small parts and tools.

Along the shop side of the building there are 12 windows, each having eight lights 16 in. high and 34 in. wide. Fluorescent lighting and many trouble lights complete the shop's illumination.

The shop is equipped to do everything that needs doing in motor overhaul and rebuilding, except crankshaft grinding.

On the east side of the floor and opposite from the shop side of the building there is a two-post hydraulic lift which is recessed into the concrete floor when not in use.

In a fleet the size of ours it seems necessary to provide equipment that has many uses. A greaserack that could only be used for greasing would be a luxury. Our two-post lift is used primarily for greasing. After that, it actually supplements the shop equipment. Having two posts it can be used on two tractors at the same time, under conditions where one tractor may need its front lifted and another needs to be raised higher than practical with the floor jacks. It can also be used on the fleet's two passenger cars.

This rack is so positioned that units entering through the front door can pass the lift to go out at the back door, or go to the washracks. Units can come in and go to the shop area or can leave the shop area and go out on the highway via the back door without disturbing the work at the lift.

Parts Lift Record for PM

WE ARE starting to keep records of the number of miles representing the life of parts, overhauls and other parts of the units. From these accumulative records we may make up our own PM schedules designed to get all the practical and economical life out of parts and overhauls and yet stop short of the expensive road-failure bracket.

Units are greased and washed before each trip, and oil and filters are changed at not less than 2000-mile intervals.

(TURN TO PAGE 123, PLEASE)

SMALL SHOP PLAN

(CONTINUED ON PAGE 120)

Tune-ups come at 5000-mile intervals at which time the overall mileage is given consideration and the records are checked to see if an overhaul is indicated. Use of more than the normal amount of oil is usually taken to indicate need of a general overhaul. However, if the records do not indicate enough miles, we then give the unit a complete check for small oil leaks, such as out of side plates or from overhead, or anywhere else.

Most of the time I supervise the shop work myself, see that parts department buys the proper parts, and also act as dispatcher. A working foreman has practical charge of the shop and maintenance work. Regular mechanical crews consist of two men in the day time, one of which is the foreman, and one or two men at night. Two men take care of the greasing and washing.

END

(Please resume your reading on P. 54)

NTLS MEETS IN CHICAGO

Newly affiliated with the National Truck Leasing System, Inc., is the Bridge Auto Renting Corp., New York City, as a result of action taken at the quarterly executive committee meeting of National Truck Leasing System held in Chicago, May 23-24, and attended by representatives from a dozen member-firms.

At the invitation of President C. P. Clark, Robert Nixon, director of OPA transportation and public utilities division, attended a session of the committee at which there was discussion as to what would result in the way of price fluctuations if truck leasing were decontrolled. It was the consensus of the lessors that such decontrol would mean no inflationary increases in charges to lessees, since lessors must compete on the basis of what truck operation would actually cost the lessee if he chose to handle his transportation needs by direct truck ownership.

● WHAT'S COMING?

ANSWER... (To Question on p. 120)

"Carbon white," also called white soot, has been developed by B. F. Goodrich Co. With it, tires and rubber products can be produced in any colors. As a reinforcing agent for rubber, carbon white has the same strengthening properties of carbon black without its disadvantages.

(Another Cartoon Quiz is on p. 124)

FRUEHAUF SUSPENSION

(CONTINUED FROM PAGE 69)

Returning to postwar production of stainless steel trailer bodies, Fruehauf reports a number of important improvements. The roof has heavier corrugation with double the former number of welds to cross-members. The front end has been altered to provide a flat panel for advertising display. Rear doors have box-frame design for greater stiffness, while smooth panels contribute to clean-

liness and display. Underframe loads are carried by four principal lateral beams over the supports and by longitudinal beams extending to the rear floor beams. The rear floor beam is heavier.

Patented Fruehauf "steel-ribbed" floor construction now standard on Aerovan day freight bodies, is incorporated in the new model, using stainless steel for the hat-shaped floor support sections.

END

(Please resume your reading on P. 70)

Save COSTLY MAN HOURS! Speed REPAIR WORK!

Equip FOR SERVICE! Equip TO

CLEAN with STEAM

SIEBRING

STEAM CLEANER

OPERATES Economically!
Burns low cost commercial fuel oil or gas! Electric units also available!

Makes QUICK WORK of Tough Cleaning Jobs! Cuts Grease and Grime in a Hurry!

A big asset in any repair shop or service station! A time and money-saver. **ALSO A MONEY-MAKER!** The Siebring PORTABLE Steam Cleaner provides instant steam, hot water or a combination of the two UNDER PRESSURE for fast cleaning on the toughest grease and dirt packed jobs. First it knocks loose, then it dissolves and quickly removes hardest packed dirt, grease and grime. Penetrates crevices and corners. Does a BETTER job in HALF THE TIME!

Operates independent of city water pressure or electricity!

Easily moved about!

LOW COST, PORTABLE UNIT for CLEANING

- and WASHING AUTOMOBILES
- AUTO MOTORS
- MOTOR PARTS
- TRUCKS
- TRACTORS
- and OTHER TOUGH JOBS!

10-DAY Free TRIAL OFFER!

YOU RISK NOTHING! . . . Let us put this remarkable automatic steam cleaner in your shop for 10 DAYS' FREE TRIAL. See for yourself how simple it is to operate; how economical, safe and service free! Write for descriptive literature and details of our 10 Day "Free Trial" offer.

SIEBRING

MANUFACTURING COMPANY

501 MAIN ST., GEORGE, IOWA

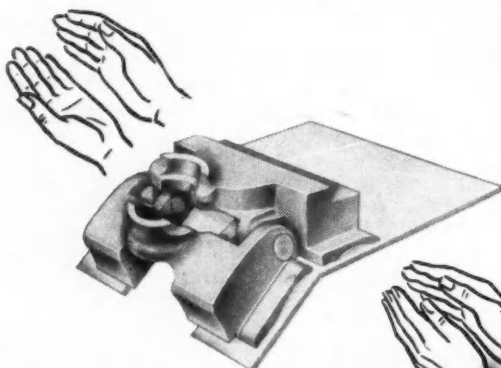
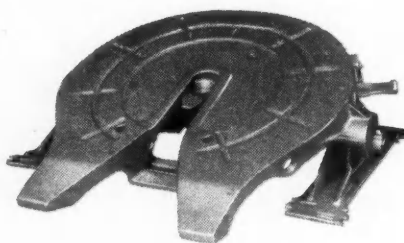
Super Service Stations for Pacific Coast

West coast truck drivers will soon have super service truck stations to make their runs easier and more pleasant. Tide Water Associated Oil Co., Cal., announced plans for construction of ultra-modern stations in strategic Pacific coast cities. Among the facilities offered will be special high capacity truck fueling pumps so arranged that vehicles can be fueled on both sides simultaneously with total sales recorded on a single meter unit; 60-ft truck scales with 50-ton weight capacity; covered service section capable of storing two complete over-the-road truck and trailers; complete and modern



Here's Why King-Pins Last Longer in These Better Jaws

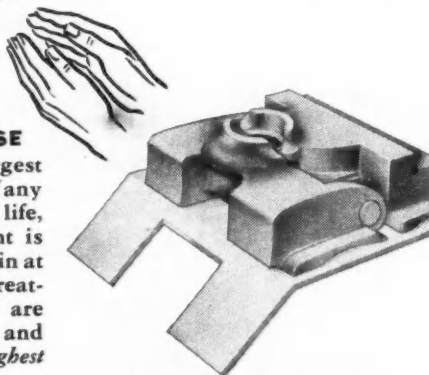
No 5th wheel can do a good job unless it's *easy* on king-pins, too—and no other 5th wheel is as easy on king-pins as the ASF Safety. *Here's why!*



NO OTHER JAWS LIKE THESE
ASF Safety jaws give you the largest king-pin bearing area—*by far*—of any 5th wheel. That means *long* jaw life, of course, but equally important is the fact that jaws grip the king-pin at the *top* where pin diameter is greatest. King-pin *spring* and *bend* are reduced practically to *zero*. Jaws and king-pins stand up under the *toughest* kind of punishment.

Get the facts on this better 5th wheel. Learn how king-pin play has been *conquered*; what positive locking *really* means. Write American Steel Foundries, Automotive Division, 400 N. Michigan Ave., Chicago 11.

Here's how Safety 5th Wheels couple. Backing in the tractor slides jaw assembly onto horizontal portion of coupler housing—closes jaws *around* the king-pin.



POSITIVE LOCKING

It's mechanically impossible for this wheel to uncouple accidentally—and a quick glance tells you when it's locked. Hinge pins take no pull.

ASF Safety 5th WHEEL

lubrication facilities; equipment for truck tire service and light repair work; and a large and complete sales and display room selling all lines of truck supplies and parts for heavy units. Comfort and relaxation for drivers will be offered in an air-conditioned lounge, with hot and cold shower facilities, refreshments, magazines, newspapers, etc. The first station will open at Highway and Canal Streets, Redding, Calif., and another will be constructed at Stockton Boulevard and Fruitridge Road, Sacra., Cal. The station buildings will be 60 x 70 ft.

J. L. CARMITCHEAL DIES

Jack L. Carmitchael, vice-president of the Lincoln Engineering Co., St. Louis, Mo., died on May 31, 1946.

WHICH IS IT?



WHICH OF THESE COMPANIES, ONCE THE MAKER OF MIDGET CARS, IS NOW PRODUCING SUPERCARGO TRAILERS?

- ☐ THE AUSTIN CO.
- ☐ THE AMERICAN BANTAM CAR CO.
- ☐ HIGHWAY TRAILER CO
- ☐ CROSLY CORP

Answer on p. 126



HERE'S WHAT THEY WANT!

Car owners want **FULL POWER** in their old cars. Moog X-Plus Piston Rings are designed to give them **FULL POWER** results.

The famous X-Plus Steel Oil Ring, with battle-ship oil ports, prevents oil pumping — the steel segments insure quick starting and eliminate the slow break-in period.

Repairmen approve of the Moog **FULL POWER** set-up because it does the job and eliminates costly comebacks.

Ask your jobber or write us for **FULL POWER FACTS** today, Moog Piston Ring Co., Division Moog Industries, Inc., St. Louis 14, Mo.

*The Moog X-Plus Steel Oil Ring is the back bone of the Moog overhaul set-up. A different type ring for each groove — each ring has its job and does it — Delivers **FULL POWER**.

MOOG

X-PLUS PISTON RINGS

(U. S. PAT. NO. 1,771,198)

MOOG IS THE BUY-WORD FOR SPRINGS AND COIL ACTION PARTS

COPYRIGHT 1946 MOOG INDUSTRIES, INC.

LOW-COST MAINTENANCE

(CONTINUED FROM PAGE 65)

testing specific units should be devised, also quick means provided for a rapid change of the units. Here again, this type of work will usually have to be performed while the vehicle is loaded.

Other Troublesome Points

TRUCK floors constitute one of the most painful headaches of the trucking business. Truck floors should be built strong enough to

carry the freight we are hauling. Strange to say, we do carry a lot of freight other than light packaged goods.

Floor repairs take the vehicle out of service during its productive hours; and for that reason floors are too frequently neglected, with resulting freight claims to the operator.

With the more general use of fork-lift loaders, there must come a new concept of a satisfactory truck floor. By utilizing truck loaders, concentrated loads of 5000 to 6000 lb. on

the two front wheels of the fork lift truck are likely and, as a result, body floors should be built stronger in order to permit the use of such mechanical handling equipment.

Along the eastern seaboard, trucks hauling produce from the South to the densely populated areas around New York City may, within two or three days' operation, run from an extreme in hot weather to winter weather; therefore more consideration should be devoted to heating and ventilating. We can no longer depend upon heat leaking up through cracks in the floor boards to keep the driver warm. In the interest of safety, we should seal the floor boards as completely as possible in order to keep all fumes out of the driver's cab, especially during the winter season when the driver has the cab window closed.

A recent report from the safety section of the Bureau of Motor Carriers of the Interstate Commerce Commission, severely criticised the wiring and marker lights provided on much truck equipment. Marker lights, stop lights and tail lights will be in service for many years on truck bodies. We cannot expect that unprotected metal construction will prove satisfactory.

Insulation of wiring must be made heavier as there is need for mechanical strength as well as electrical insulation. It will be seldom under cover and must be protected from the elements. Under these circumstances, light rubber-covered wire inevitably causes trouble, and forces the truck owner to rewire his truck long before the vehicle is ready for the scrap heap.

(TURN TO PAGE 128, PLEASE)

PERMALUX CO. MOVES

The Permalux Co., manufacturers of decalcomania products, has moved from its former location at 900-910 West Lake Street, Chicago, to 500 Rathbone Ave., Aurora, Ill.

● WHICH IS IT?

ANSWER... (To Question on p. 124)

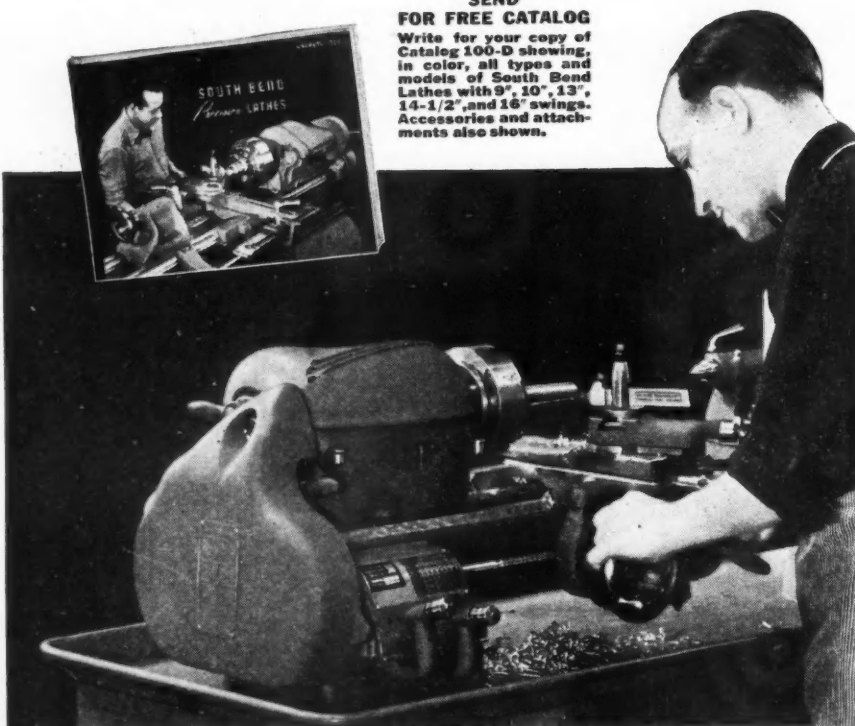
The American Bantam Car Co. of Butler, Pa., founded for the manufacture of pint-sized autos, is now producing one of the biggest things on wheels—extra large trailers.

(Another Cartoon Quiz is on p. 128)

Service Jobs Demand Precision

Service and maintenance work requires the same exacting precision as in the factory where the original parts were made. Makeshift equipment finds no place in machining such parts as pistons, bearings, bushings, valves, and commutators; in truing-up work and precision checking, in making new parts from old. A versatile South Bend Precision Lathe does all this—and more—with factory accuracy. Bent shafts can be tested and straightened, worn parts can be built up with welding rod and re-machined, bushings and bearings can be built from shafts or castings or scrap. In service shops where precision is vital, a South Bend Lathe is essential equipment. Write today for free catalog.

SEND FOR FREE CATALOG
Write for your copy of Catalog 100-D showing, in color, all types and models of South Bend Lathes with 9", 10", 13", 14-1/2", and 18" swings. Accessories and attachments also shown.



9"x 3-1/2" South Bend Underneath Motor Driven Lathe
LATHE BUILDERS SINCE 1906

SOUTH BEND LATHE WORKS

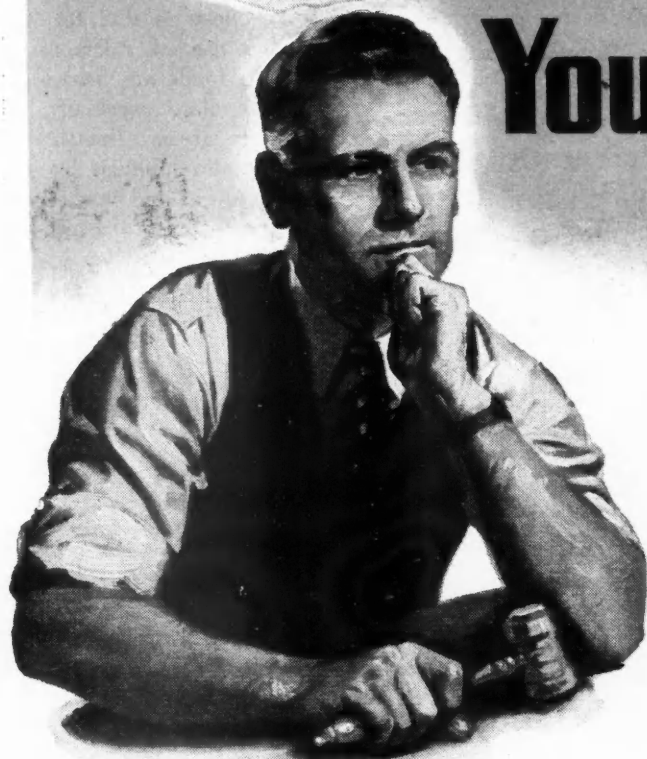
445 E. Madison St., South Bend 22, Indiana





Mr. Fleet Owner:

You Be the Judge



**Unless YOU Agree
FRAM FILCRON Filters
Save You Money . . .
This 90 Day Road Test
Costs You Nothing!**

DON'T TAKE OUR WORD FOR IT! When we say amazing new Fram Filcron filters will save you many times their cost in repairs, overhauls, and maintenance—make us prove what we say. Install Fram Filcron filters on your fleet—test them on the road for 90 days—and if you don't agree they do everything we say, **YOU TO BE THE SOLE JUDGE**, your purchase price will be promptly refunded!

The Fram Filcron filter is *not* "just another oil filter." Filcron gives you *micronic filtration*—the trapping of abrasive particles as small as one micron (.000039 of an inch) in size. Thus, Filcron keeps oil physically, visually clean*, reduces motor wear, saves you money! Both the Army and Navy used millions of Filcron filters and cartridges during

the war—in every climate, under the most difficult conditions—and Filcron did the job! Now this revolutionary advance in oil filtration is ready to save you dollars and delays. Contact your jobber today—install Fram Filcrons all 'round. If your fleet is already filter equipped, install genuine Fram replacement cartridges to get the most out of present filters. There's a Fram cartridge to fit most every type of filter. **FRAM CORPORATION**, Providence 16, R. I. *In Canada: J. C. Adams Co., Ltd., Toronto.*

**Certain heavy-duty oils, due to the detergent additive used, will turn dark in color almost as soon as put into the engine. Where such oils are used, filters are more essential than ever before and cartridges must be changed regularly. Follow the advice of your oil company.*



FRAM

Filcron Filter

The Modern Oil & Motor Cleaner

LOW-COST MAINTENANCE

(CONTINUED FROM PAGE 126)

Densely Traveled Highways

Along the eastern seaboard the highways are densely traveled. While our hill operation is not severe, commercial vehicles need good ability in order to keep pace with passenger car traffic to a reasonable degree.

The Public Roads Administration, in its superhighway plan, is proposing the reduction of all grades to a

maximum of 3 per cent. This may not be possible in the first few years, but I believe a maximum of 4 per cent is a possibility. When our superhighways are built with grades of this order, you can be sure that neither passenger car owners nor highway administrators are going to be satisfied with a 5 or 6 m.p.h. speed of trucks on such grades.

Due to our densely populated highways good brakes are needed on trucks. With large commercial vehicles this inevitably calls for power

brakes. The power brakes should be designed so that the driver expends very little effort on braking operations. Stops may be frequent, and we must not unduly fatigue the driver by compelling him to supply a large portion of the brake effort. On the other hand, brake action must be rapid and the driver should have prompt response to his braking.

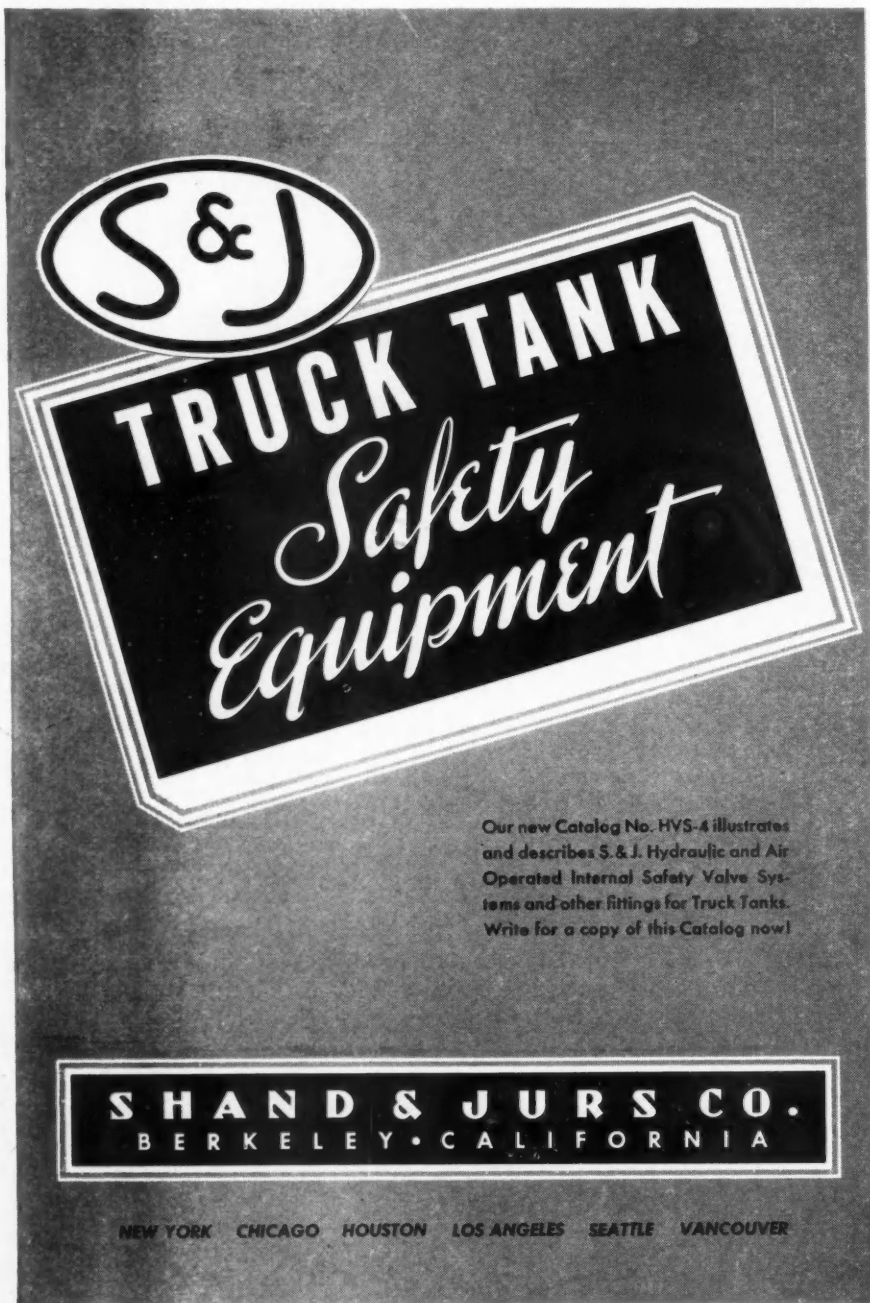
Refrigeration and Insulation

ONE phase of the trucking industry, which I believe is due for expansion is the use of refrigerated bodies. Frozen foods are becoming increasingly popular, especially in our metropolitan areas. But this is a field open to development by experts in refrigeration and insulation.

For the transportation of ordinary commodities in the summer, vans could be given better roof protection against heat. Here again, I realize that there is need for the trucking industry to indicate its requirements because any system of heat insulation will inevitably reduce the payload of the vehicle. As motor carriers, we must make up our minds just what we want along these lines in order to suggest the type of equipment required.

END

(Please resume your reading on P. 66)



The advertisement features a large, stylized logo at the top left consisting of the letters 'S&J' inside an oval. Below this, the words 'TRUCK TANK' are written in a bold, sans-serif font, and 'Safety Equipment' is written in a large, elegant script font. The entire logo is enclosed in a double-lined rectangular border. To the right of the logo, a block of text reads: 'Our new Catalog No. HVS-4 illustrates and describes S. & J. Hydraulic and Air Operated Internal Safety Valve Systems and other fittings for Truck Tanks. Write for a copy of this Catalog now!'. At the bottom of the advertisement, the company name 'SHAND & JURSCO.' is printed in a bold, sans-serif font, with 'BERKELEY • CALIFORNIA' underneath it. Below this, a list of cities is provided: 'NEW YORK CHICAGO HOUSTON LOS ANGELES SEATTLE VANCOUVER'.

Our new Catalog No. HVS-4 illustrates and describes S. & J. Hydraulic and Air Operated Internal Safety Valve Systems and other fittings for Truck Tanks. Write for a copy of this Catalog now!

SHAND & JURSCO.
BERKELEY • CALIFORNIA

NEW YORK CHICAGO HOUSTON LOS ANGELES SEATTLE VANCOUVER

WHO SAID IT?



"BUSINESS IS NEVER SO HEALTHY AS WHEN, LIKE A CHICKEN, IT MUST DO A CERTAIN AMOUNT OF SCRATCHING FOR WHAT IT GETS."

- ☐ HENRY FORD
- ☐ C. E. WILSON
- ☐ HARVEY FRUEHAUF
- ☐ WALTER P CHRYSLER

(Answer on p. 130)

Smooth Horsepower



CASITE

**GIVES BETTER AND SMOOTHER
PERFORMANCE ALL-YEAR-ROUND**

● A tight new motor needs the protection of Casite during the vital break-in period.

An older motor needs Casite to restore its power . . . to keep it clean and full of zip.

Casite carries oil quickly to the tight spots . . . reduces engine wear . . . retards formation of sludge and gum.

Safeguard your new motors during the critical break-in period. Give your old motors more power, better and smoother performance. Keep Casite in the crankcase oil all the time.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

**New Radio Show
"RIGHT DOWN YOUR ALLEY"**

Coast-to-Coast

AMERICAN BROADCASTING COMPANY

EVERY SUNDAY AFTERNOON

4:30 Eastern Daylight Time
3:30 Eastern Standard Time
3:30 Central Daylight Time

2:30 Central Standard Time
1:30 Mountain Standard Time
12:30 Pacific Standard Time

Use Casite in the crankcase every oil change and through the air intake of gasoline motors every three months—a pint for all passenger cars and small trucks; 10% of crankcase capacity for all others.

WHAT CASITE DOES

- Carries oil to the tight spots.
- Protects motor during break-in period.
- Reduces formation of sludge and gum.
- Frees sticking valves and rings.
- Gives Better and Smoother Performance all-year-round.



WEIGHT REDUCTION BETTER BRAKES

(CONTINUED FROM PAGE 63)

semblies, differential carriers, disk wheels and many other parts seems practicable. Experiments with many additional items are already being conducted.

Better Brake Control Needed

REDUCTION in unladen weight further accentuates the serious

problems which result from the difference between laden and unladen weights. One of the most serious of these is the problem of control of brakes. A combination of vehicles equipped with brakes adequate for proper control of a 72,000-lb. gross load has such severe braking action, when unladen, as to be extremely difficult to control when an emergency stop becomes necessary or when operating on slippery roads.

Braking problems are further ac-

centuated in the western states by the lag between movement of the brake pedal and contact between the shoes and drums. On a 60-ft. combination, this lag can exceed a full second. On some combinations, it has been possible to reduce the lag to about four-tenths of a second, but further reductions are extremely desirable to decrease the overall stopping distance and to permit better control by making braking action more promptly responsive to movement of the brake pedal.

Ice, snow and wide temperature variations due to variations in elevation present the problem of brake chamber drainage to avoid formation of ice inside the chamber, which may render it inoperative. Front wheel traction requirements on long combinations make the use of front wheel brakes impractical, because of the tendency to lose control on slippery roads whenever front wheel traction is impaired.

Emergency Brakes Inadequate

PERHAPS the most difficult braking problem, from an engineering standpoint, is that of the emergency brake. The present emergency brakes are wholly inadequate to stop loaded combinations on mountain grades when the service brakes fail. This is no reflection upon the design of the brakes available. The need is for much greater capacity. A small disk or drum cannot be expected to dissipate the heat normally dissipated by eight or 10 large drums.

Other Improvements Desired

THE problem of improving the riding quality of both trucks and trailers is another particularly difficult one. Many vehicles now operating in the western states will damage fragile cargo when operating partially loaded. As an example, a front spring on a six wheel full trailer may carry 700 lb. when empty and 8200 lb. when loaded. Since it appears impracticable to vary tire pressures as loads are picked up or unloaded,

(TURN TO PAGE 132, PLEASE)

● WHO SAID IT?

ANSWER... (To Question on p. 128)

Henry Ford.

(Another Cartoon Quiz is on p. 132)

For Power and Traction SEISMOGRAPH USES FABCOS

You cannot thoroughly explore an oil field unless all of your units—water, shooting, and drilling—can travel all over the field. Your equipment must be able to go anywhere that wheels can take it.

Pictured below is one of 8 units which the Seismograph Service Corporation has sent overseas in their worldwide search for oil. All are equipped with Fabco Dual Drives for maximum traction and for complete utilization of the full engine power. All of them have Fabco Top Mount Power Take-offs which deliver full engine torque to the driven machines.

Write for the Fabco Dual Drive Catalog which explains the application of these units to standard production model trucks.



27 Years in this Business

Fabco

F. A. B. MANUFACTURING CO.

1249 SIXTY-SEVENTH STREET • OAKLAND 8, CALIFORNIA

Dual Drives • 6 and 10 Wheel Units • Logging and Highway Trailers • Frame Extensions

ENGINEERING SKILL MAKES
THE *Big Difference!*



It is true that the fundamental mechanical details of practically every truck winch are similar. As a truck winch has comparatively few working parts it is much less complicated to operate and maintain than more complex machines. However, Braden Engineers have always felt that even basic winch designs could be improved upon. That's why, year after year, they have strived for improvement in the type of metals and alloys used in vital parts. They have

constantly tested new gear designs and brake assemblies in the laboratory and in actual use. Thus BRADEN Truck Winches have attained a high degree of ruggedness and safety never before found in any winches of equal rated capacities.

Ask your dealer for complete information concerning BRADEN "Engineered" Truck Winches, or write direct to the factory.

"Buy BRADEN . . . They are SAFER"

Pictured above is Braden Model M12-16B equipped with the new oil cooled fully adjustable, automatic safety brake.

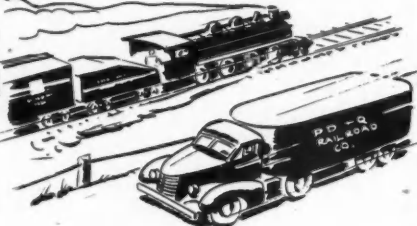
BRADEN WINCH COMPANY
1001 East Admiral Boulevard



TULSA 3,
Oklahoma

TRUE OR FALSE ?

THE RAILROADS OWN
MORE TRUCKS THAN
LOCOMOTIVES.



☐ TRUE

☐ FALSE

Answer on P. 134



AT LAST..the missing part

The most logical, most needed item, to complete a picture of safety and efficiency . . . 20,000 users have been quick to see in Safety Step, a short cut to greater safety and lower fatigue loss. Thanks to this new idea:

- One man can often do the work of two . . .
- Loads are handled only once
- No more climbing up and jumping off
- Less chance of injuring personnel and goods
- Loading-time loss cut

Safety Step fits most trucks, trailers, and vans. Models are available for rear or side mounting . . . both feature anti-slip treads powerfully built (stressed for 1000 pounds).

AVAILABLE ANYWHERE IN THE COUNTRY—ORDER TODAY

SAFETY STEP

SALES COMPANY

1017 S. La Brea Ave., Los Angeles 35, Calif.

WEIGHT REDUCTION BETTER BRAKES

(CONTINUED FROM PAGE 130)

the problem is further accentuated by the excessive tire capacity when operating with reduced loads. Considerable damage to the vehicles themselves results from vibration and shock when operating empty or with only a partial load. Some progress has been made in solving this problem but much remains to be done to eliminate it.

Accessibility is one of the most important factors in reducing labor costs and insuring adequate preventive maintenance. Since the cost of maintenance during the life of the vehicle far exceeds its initial cost, accessibility is a problem of first importance in the trucks used for intercity service in the west. The problem is particularly difficult in the cab-over-engine trucks which are required for the operations in which the majority of the cargo transported is so bulky as to require the maximum possible loading space within the legal length limitations.


Heavier loads and demands for faster service are increasing the necessity for additional power. The reduction in net load and the increased fuel consumption which normally result from the use of more powerful engines, and the rising costs facing western operators create a demand for engines with more power but with little or no increase in weight and fuel consumption. Engines with 250 to 300 hp. will probably be widely adopted for intercity service in the western states as soon as proven engines of such capacity become available. Use of such engines will probably create additional lubrication, clutch, transmission, drive line, differential and axle problems.

Western operators are looking forward to the day when hydraulic drive becomes practicable for their use. Chief problems to be overcome appear to be weight and to obtain use of the engine as a brake when descending long mountain grades.

Design Simplicity

ONE of the most important of all factors in the design of equipment for the larger fleets is simplicity. Any design which requires special

(TURN TO PAGE 134, PLEASE)



The Fate of a Fleet is in This Flask

Hundreds of Fleets Depend on advice

FROM

VALVOLINE FLEET LABORATORY SERVICE

A sample of crankcase drainings from one of your units holds secrets which affect the efficiency and life of your fleet. But, in our laboratory, we read these secrets like a book—evaluate them in the light of your particular operating conditions—translate them for you, into practical suggestions. Hundreds of fleets are using this service to step up efficiency and reduce operating cost.

VALVOLINE FLEET CONTROL LABORATORY SERVICE

Ask the Valvoline man how this service can be obtained **FREE**

Wire or Write your nearest branch

FREEDOM-VALVOLINE OIL COMPANY

Dept. 41-G Freedom, Pa.

New York - Washington - Toronto - Pittsburgh - Atlanta
Cincinnati - Detroit - Chicago - Los Angeles - Vancouver, B.C.
Refineries at Butler and Freedom, Pa.



WEIGHT REDUCTION BETTER BRAKES

(CONTINUED FROM PAGE 132)

handling or attention from the driver is almost certain to give constant trouble. What gages he must watch should be so mounted as to be seen at a glance. Automatic warning signals are excellent, but only if there is no means of shutting off the signal so long as the dangerous condition continues, and if no action other than

starting the motor is required to make them operative. Simplicity is also extremely desirable from the maintenance standpoint. Positive adjustments requiring a minimum of judgment for accuracy, easily removable units, parts which cannot be readily assembled improperly, heavy units which can be disassembled or adjusted without removal from the vehicle, minimum practicable number of pieces all tend to reduce the cost of maintenance.

Vehicle must be sturdy. Such

items as heat indicators, speedometers and oil gages must be capable of withstanding steady vibration over long periods. Sheet metal, particularly hoods, fenders and cabs, should be designed to last for the life of the vehicle. Wiring should be really protected from grease and permanently mounted in such a manner as to prevent wearing through. Oil, air and fuel lines should be easily replaceable, free from pockets which can cause freezing of the lines, so mounted as to minimize wearing through or breakage from vibration. Radiators, in particular should be strong, well mounted and a little over size rather than a little under. Shifting rods, brake rods, clevises and pins, throttle connections, and other controls all should be simple, sturdy, well mounted, easily replaceable, easy to use and free from bind when operating over rough terrain. Every point of wear should have a readily replaceable bushing, plate, shaft or other part to protect each major part from damage.

Every possible part should be interchangeable. Why should a truck axle have different wheel bearings, oil seals, brake drums, brake shoes, shoe springs or cam bearings from those on a trailer axle designed to carry the same load? As new designs are adopted as a result of war developments it is to be hoped that a much greater measure of standardization and interchangeability will be adopted.

END

(Please resume your reading on P. 64)

BUDA OFFERS ENGINE BULLETIN

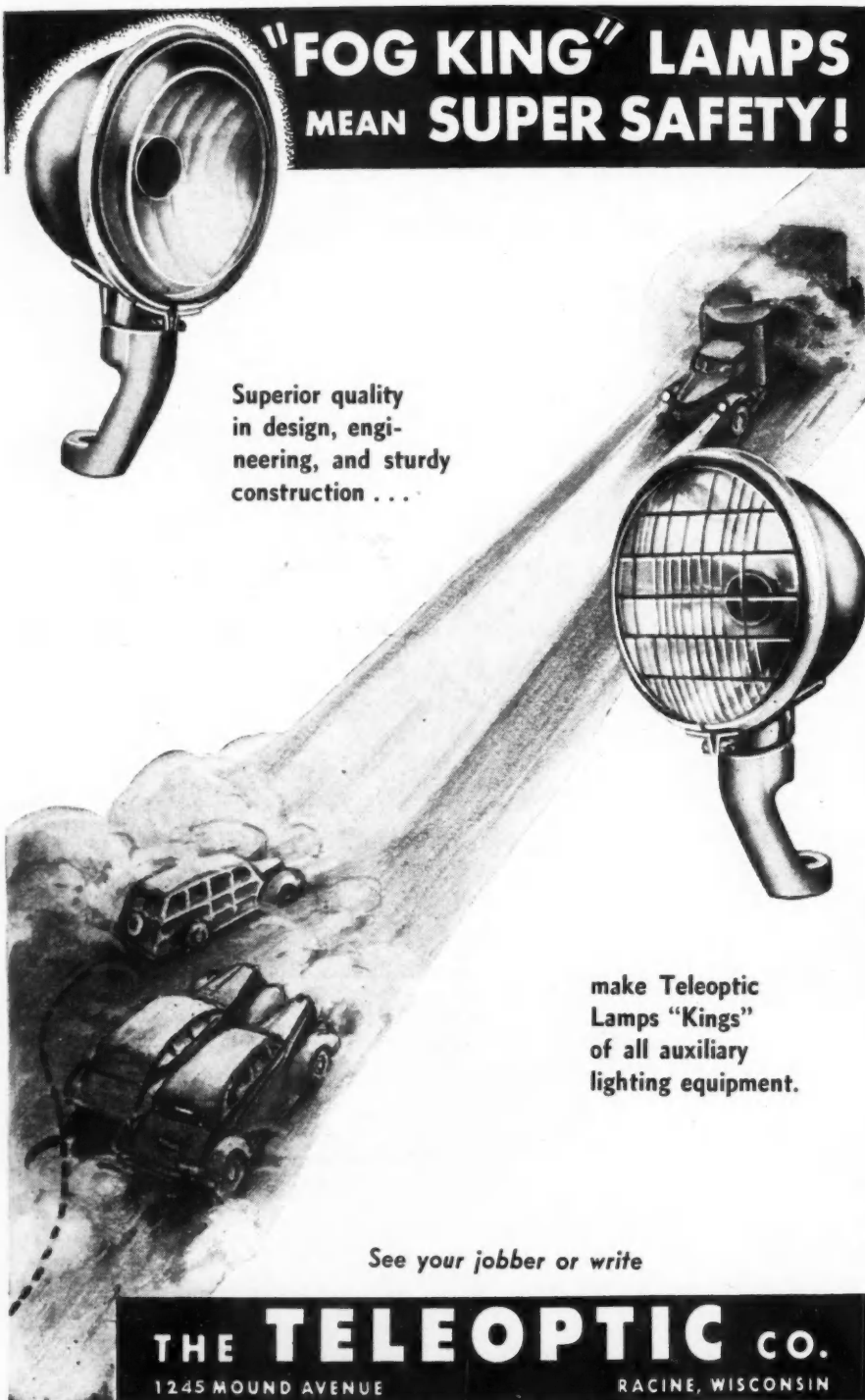
A new 4-page bulletin, No. 1238, describing the Buda Company's Universal Diesel Nozzle Tester is now available from the company. This tester is described as a low cost portable tool that will test all makes and models of diesel nozzles and injectors.

● TRUE OR FALSE?

ANSWER... (To Question on p. 132)

True. In fact, the railroads in this country operate twice as many trucks as locomotives. There are about 45,000 locomotives, but the railroads own more than 90,000 trucks.

(Another Cartoon Quiz is on p. 136)



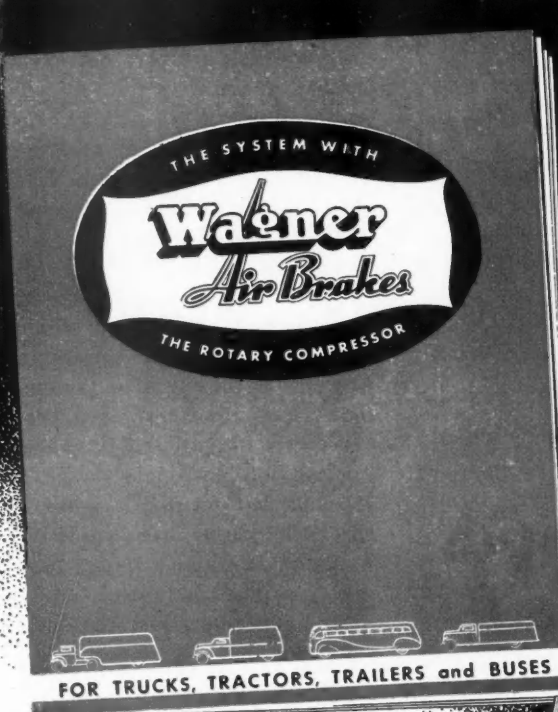
**"FOG KING" LAMPS
MEAN SUPER SAFETY!**

Superior quality
in design, engineering, and sturdy
construction . . .

make Teleoptic
Lamps "Kings"
of all auxiliary
lighting equipment.

See your jobber or write

THE TELEOPTIC CO.
1245 MOUND AVENUE RACINE, WISCONSIN



Contents...

Rotary Air Compressor—what it does, how it operates, how the air is freed of oil, compressor lubrication, temperature control, inherent advantages of rotary-type compressor, cross-section drawings of compressor showing pumping and non-pumping cycles.

Wagner Power-Cluster—its use and advantages, cutaway drawings, graph showing ratio of air pressure to hydraulic-line pressure. Air Power Cylinders—engineering features, cross-section drawing. Air Valves—foot-operated type, hand-control type, treadle-type, lever-type, push-type, quick-release, and emergency. Slack Adjuster—Hydraulic Cam-Brake Actuator—Valves, Couplers, Switches, Gauges, Fittings, Reservoir, Etc.

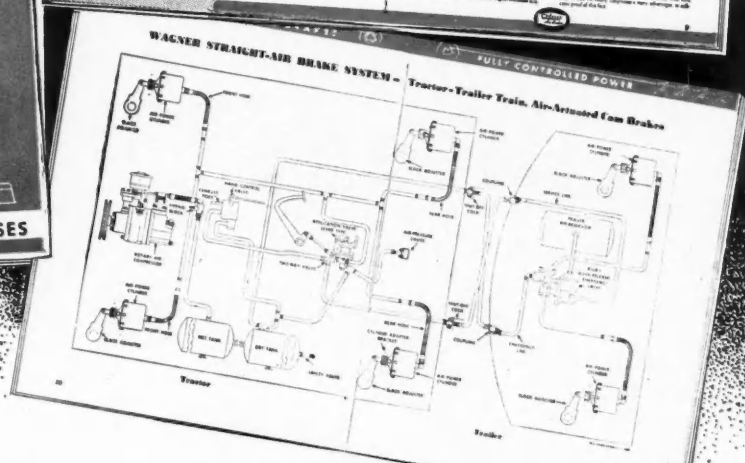
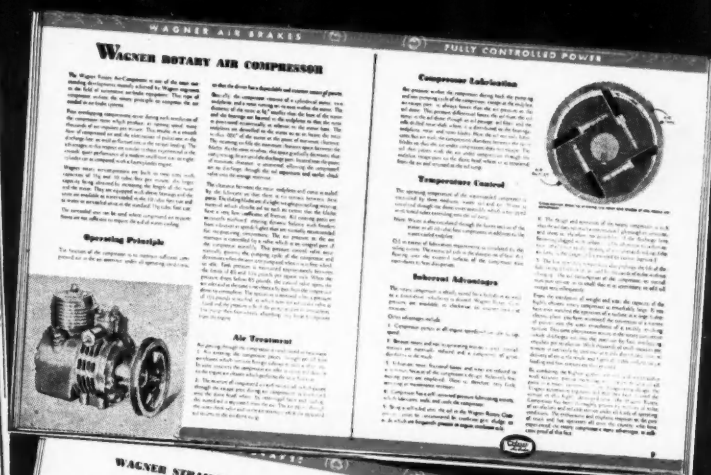
Schematic Diagrams of Wagner Air-Hydraulic Brake System for commercial vehicles equipped with internal hydraulic brakes, Wagner Straight-Air Brake System for commercial vehicles equipped with cam brakes, Wagner Air-Hydraulic Brake System for tractor-trailer train, and Wagner Straight-Air Brake System for tractor-trailer train, air-actuated cam brakes.

LOCKHEED HYDRAULIC BRAKE PARTS AND FLUID...NoRoL...CoMaX BRAKE LINING

Wagner

WAGNER ELECTRIC CORPORATION
6470 PLYMOUTH AVE., ST. LOUIS 14, MO.

Please send me, without obligation, a copy of your new Bulletin KU-50B on Wagner Air Brakes.



Send For This Bulletin...

This 24-page bulletin on automotive air-brakes fully describes the various types of Wagner air-brake systems. The bulletin is interestingly written and contains valuable information for anyone interested in air brakes for motor-truck or bus operation. The function and operating principles of all parts of Wagner air and air-hydraulic brake systems are thoroughly explained.

Perhaps the most interesting feature of the bulletin is the discussion on the Wagner Rotary Compressor for air-brake systems, this compressor being one of the most outstanding developments in the field of automotive air-brake equipment. Drawings and cutaway photographs clearly illustrate the rotary principle used by this new-type compressor, and complete information is given on its construction and performance characteristics.

Fill in and mail the coupon now for your free copy of this new bulletin.

AIR BRAKES...TACHOGRAPHS...ELECTRIC MOTORS...TRANSFORMERS...INDUSTRIAL BRAKES



Electric

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

K48-9

SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 64)

which I believe could be put on the dashboard of heavy-duty, over-the-road equipment. This instrument would be a temperature gage on the crankcase oil. Many of our high-lead engine bearings have failed because the cooling oil, which was supplied to the bearings, had reached a temperature where it could no longer keep the temperature of the bearings

below their plastic state. Oil serves, in an engine, as much as a bearing coolant as it does a lubricant. Any coolant, especially one buried away from the driver, needs a gage to determine whether it is satisfactorily serving as a coolant. If the oil level in an engine becomes low in the summer, this condition will probably be indicated just as quickly by an increase in the oil temperature as it will by any other method.

An oil temperature gage would also be useful in the winter. I believe

it is becoming recognized that too low an oil temperature promotes water sludge and various other difficulties which are very detrimental to engine operation. If we could be more conscious of engine oil temperature, we might pay greater attention to keeping the crankcase warm in the winter and cool in the summer.

PM Checks Take Much Time

MAINTENANCE and preventative maintenance are both sore points amongst most truck owners. Comprehensive preventative maintenance plans look excellent on paper, and everybody is enthusiastic about doing the job until you do an actual job and find out that to make all the checks and tests, requires 10 or 12 hours of one man's time. Two men may possibly cut the job down to 5 or 6 hours, but even that means a vehicle is out of service for a working day.

Various preventative maintenance guides outline certain comprehensive checks to be made at 5000 and 10,000 mile intervals. I agree that these periods may not be unreasonable in the present development of the automotive mechanism; however,

(TURN TO PAGE 139, PLEASE)

STOP

UNNECESSARY MOTOR OVERHAULS *at once!*

SI-EN-TIF-IK

MOTOR RECONDITIONER

Guaranteed to

- Loosen and eliminate Sludge, Carbon and Varnish deposits from valves and rings, oil slots and lines and hard to get at parts of your motor.
- Increase Compression and power by freeing valves so that they seat smoothly and tightly, holding the power in the cylinder where you want it.
- Save Gas by preventing its leakage through improperly operating valves.
- Save Oil by assuring free circulation.
- Stop Bucking, Knocks and Pings—assuring smooth motor performance.

or Money Back

SI-EN-TIF-IK Motor Reconditioner is an altogether different product—especially developed by skilled chemists to clean and rejuvenate old motors—to keep new motors new! Tested under all known climatic conditions. Acts instantly, thoroughly—gives results. Use SI-EN-TIF-IK Motor Reconditioner with every oil change and you'll see why so many fleet owners say "SI-EN-TIF-IK is TERRIFIC".

SI-EN-TIF-IK PRODUCTS CO.

2301 So. LaSalle Street • Chicago 16, Ill.



For DIESEL and GASOLINE ENGINES Available in bulk quantities for large users. Write for quotations and further information if the distributor in your area has not called on you.



WHICH IS IT?

SALE SALE



WHICH OF THESE DEPARTMENT STORES HAS BEEN OFFERING ARMY SURPLUS TRUCKS FOR SALE?

☐ MACY'S
 ☐ GIMBEL'S
 ☐ MARSHALL FIELD & CO.
 ☐ SAKS FIFTH AVE.

Answer on P. 139

SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 136)

a 5000-mile inspection means that I must do this work every two weeks. A 10,000-mile inspection I must do once a month. I am willing to do this work, but I don't want to spend any more time than absolutely necessary to do the job.

I think the whole maintenance business could be greatly speeded up by greater instrumentation and greater built-in attachments for the use of these instruments. For example, we like to check our fuel pump delivery pressure every 5000 miles. We find that fuel pumps gradually lose their life as the valves wear and the delivery pressure goes down until a point is reached where the fuel pump cannot keep the carburetor full of gas. When this condition begins to develop, the fuel pump works more and, before long, the diaphragm fails.

With the trucks as they are delivered to us, to make a simple fuel pump pressure test requires the disconnecting of the fuel line from either the carburetor or the fuel pump, insertion of some fittings and adaptors to connect the pressure gage into the line, starting the engine, reading the pressure, dismantling of the fittings and the reconnection of the fuel lines. This job would take 20 minutes to a half-hour of the best mechanic's time and, as you are aware, the constant breaking of fitting joints is not particularly good practice.

Consider now, if there was a tee permanently installed on the pressure side of the fuel pump, so that a mechanic merely had to take out a plug, put in his adaptor, connect up his fuel gage, start the engine, read the pressure, disconnect the fuel gage

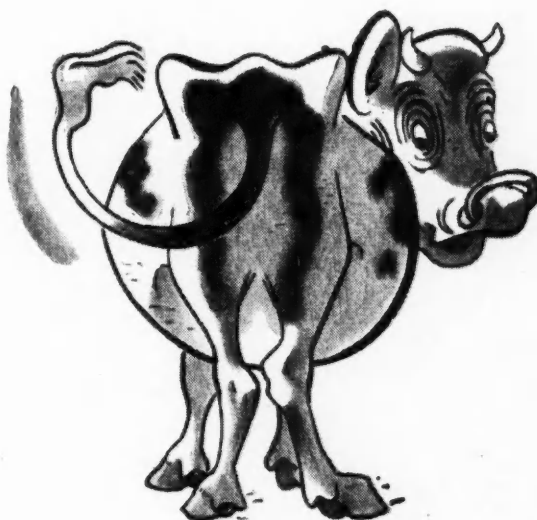
and reinstall his plug. Under these circumstances the fuel pump pressure could probably be checked in about five minutes, and we would end up with a job that was in better shape for continued operation than if we had broken the tubing joints which are difficult enough to maintain.

Spark Timing Procedure Poor

SPARK timing is certainly a miserable procedure at the present time. Most procedures call for setting the spark by a flywheel marking while

the engine is idling. With this method, we assume that the advance mechanism on the distributor works perfectly so that spark timing is correct at full load and governed speed. At the present time, the other alternative to assuming that the distributor is working correctly is to take it entirely off the engine and put it on a test bench and run it to determine its advance action. Now, actually, the total advance on distributors does not change greatly. In some cases there

(TURN TO PAGE 142, PLEASE)



"Even if it is a red truck I'm not going to argue with that Champion Grille-Guard!"

And there's no argument that a Champion Grille-Guard will protect your truck, too!

That's because a Champion Grille-Guard is ruggedly built for heavy-duty service. It guards your truck's fenders, head lamps, radiator grille and radiator from costly damage. And parts like those are difficult for you to obtain today!

Remember... a truck on the job is worth two in the shop! Help keep yours on the job with a Champion Grille-Guard. See your truck dealer, or write to the Truckstell Company, Cleveland, Ohio, today!

- Extra strong
- Rustproofed throughout
- Easily installed
- Protects entire front end



Manufactured by
TURNER EQUIPMENT CO.
DETROIT, MICHIGAN

★
**See your truck dealer
or write**

THE TRUCKSTELL CO.
UNION COMMERCE BLDG.
CLEVELAND, OHIO



TRUCKSTELL

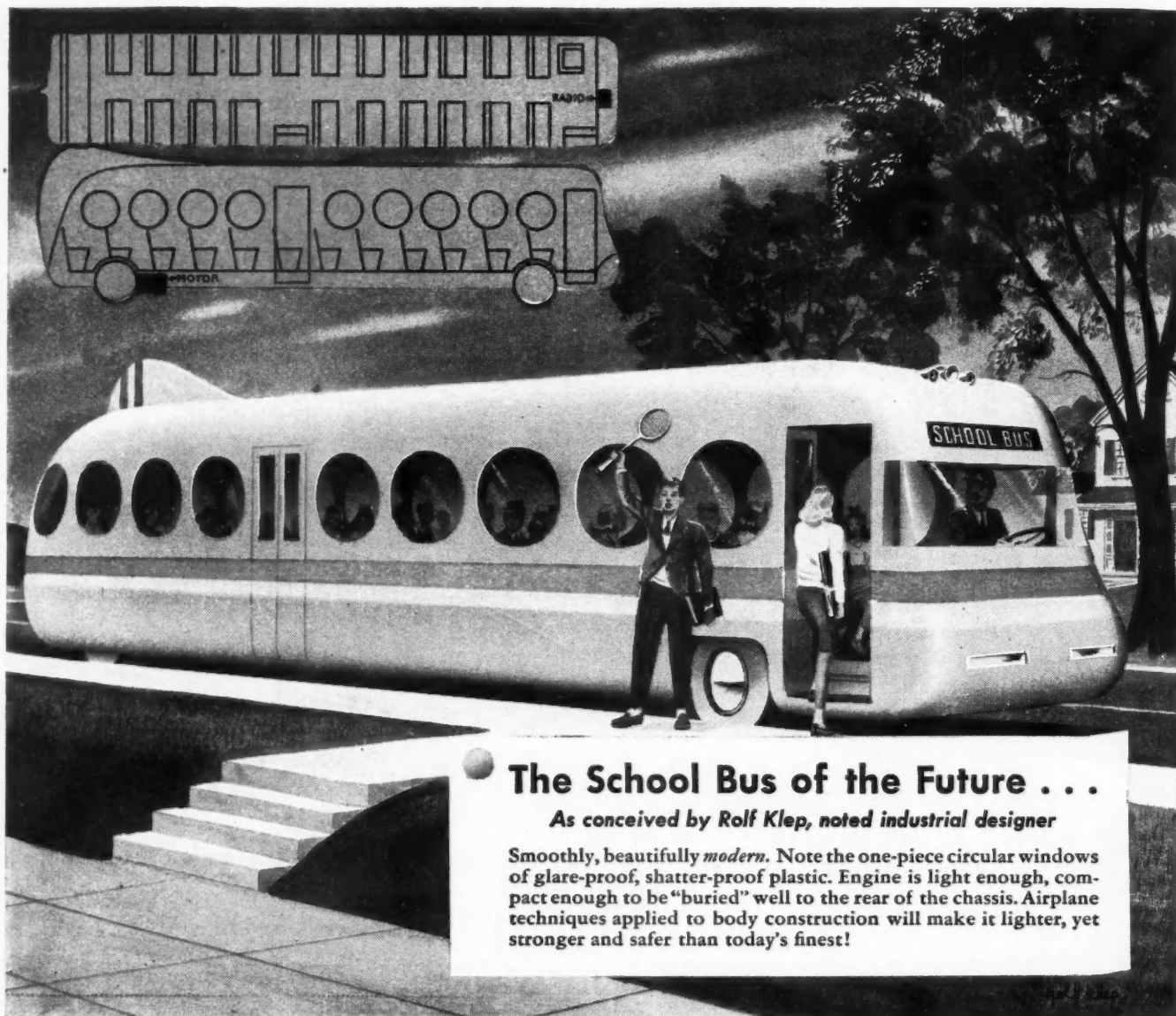
SPECIALIZED EQUIPMENT FOR PLUS PERFORMANCE

● WHICH IS IT?

ANSWER... (To Question on p. 136)

Gimbel's, using full-page newspaper ads, has been offering surplus trucks for sale. Late in March, Gimbel's offered 2½-ton Studebaker models and later 1½-ton Chevrolet Army trucks and 5-ton International Harvesters.

When this school bus arrives . . .



The School Bus of the Future . . .

As conceived by Rolf Klep, noted industrial designer

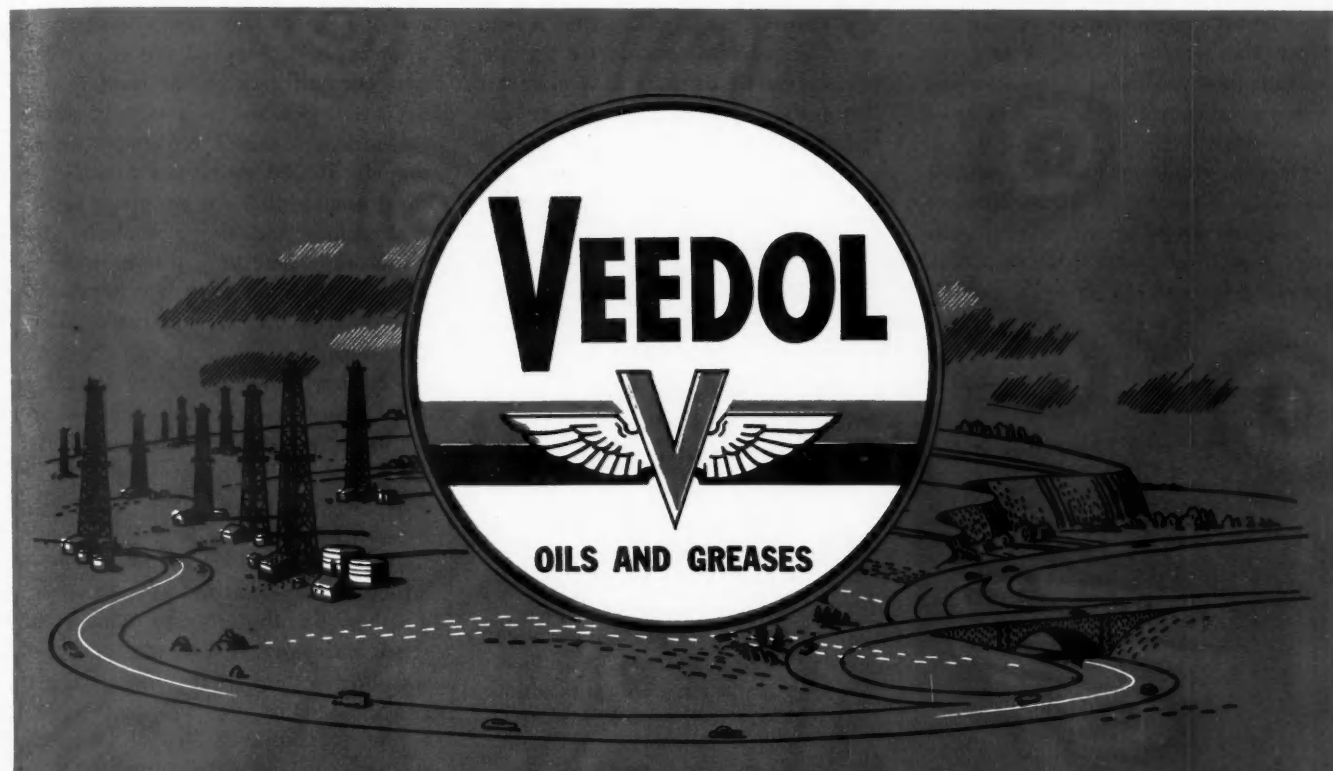
Smoothly, beautifully *modern*. Note the one-piece circular windows of glare-proof, shatter-proof plastic. Engine is light enough, compact enough to be "buried" well to the rear of the chassis. Airplane techniques applied to body construction will make it lighter, yet stronger and safer than today's finest!

Give tomorrow's school bus an A+ for brilliant engineering. But it will take a very special brand of motor oil to help win another A+ . . . for actual performance.

Well, bring on that new school bus! Veedol 90 H.D. is ready and waiting for it—RIGHT NOW!

Here's an oil with the tough, long-lasting smoothness that comes only from 100% Pennsylvania crude. But Veedol's "oil of the future" is more than a super-lubricant.

its oil will be ready and waiting!



The background illustration depicts an oil field with several derrick rigs and a winding road with cars. In the center, a large circular logo features the word "VEEDOL" in a bold, sans-serif font. Below the name is a stylized winged "V" emblem, and at the bottom of the circle, the words "OILS AND GREASES" are written in a smaller, bold font.

The Oil of the Future . . . here Today!

DETERGENT. Keeps engines clean by minimizing sludge and gum formations, keeps piston rings and valves free.

DISPERSIVE. Keeps sludge, gum and particles of soot in suspension—these are actually drained off with the oil.

ANTI-CORROSIVE. Has great oxidation resistance, assuring protection of the newer alloy bearings used in heavy duty vehicles.

"Cleans as you drive!"

It's fully detergent, dispersive and anti-corrosive, as well! Yes, 90 H.D. cleans out carbon, resists formation of sludge and varnish, fights corrosive oxidation.

Come to think of it, isn't that exactly the kind of motor oil you need to get more profitable mileage out of your present equipment? Today—you can get Veedol 90 H.D. in S.A.E. 10 to 50. Send for complete information and prices.



17 Battery Place, New York 4, N. Y • Thompson Bldg., Tulsa 2, Okla.

SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 139)

may be an increase in the spread between the retarded position and the full advance position. This may develop as a matter of wear and must be expected.

Over-the-road equipment operates probably 95 per cent of its time at or near governed speed. When you are handling 40,000-50,000 lb., g.v.w., and wish to drive about 15

m.p.h., you don't throttle down and keep in high gear as you do with a passenger car. You must shift down in order to have any performance and ability. This means that a commercial vehicle operates a greater proportion of its time at a governed speed than does the passenger car. Hence, our prime interest should be in spark timing at near normal operating speed which means just below governed speed.

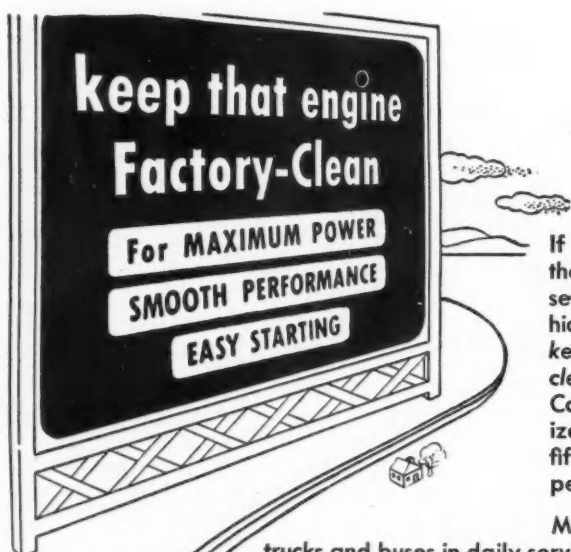
Now, this being the case, why don't we spark time at governed speed,

and not worry too much about what happens to the spark timing at idle speed? The engine may be a little rough at idle speed, but the driver is not going to be much concerned about that as long as the old buggy gets out and goes on the road.

Now, when we start talking about the mileages that I have mentioned, namely 10,000 miles per month, we must assume that we are going to operate parts and units, such as distributors, when they are in a worn condition. Our problem is maximum degree of wear, and not just a slight deviation from perfect.

Flywheel markings may continue to be a usable means of setting spark timing at governed speed; however, I believe that the flywheels should be marked off in degrees from the proper settings so that a mechanic may have some idea of the extent to which the spark timing is in error. Further, in those cases where the truck company is using a grade of gasoline other than the original grade used by the designer, spark timing adjustments should be made in flywheel degrees to compensate for the different grades of gasoline.

At present, as you know, there are available on the market several different grades of gasoline. Some are a result of a competitive situation, some are a matter of price, and some are a matter of region. It is foolish (TURN TO PAGE 146, PLEASE)



If you want the full power, the long lasting, economical service of which your vehicle is capable, you must keep the engine factory-clean. Petroleum Solvents Corporation has specialized in this problem for over fifteen years—eliminating petroleum residues.

Millions of automobiles, trucks and buses in daily service are cleaned and kept factory-clean with **LOOSITE** and **SILOO**.

LOOSITE and **SILOO** will show immediate results in power, pick-up and performance on any make car regardless of type or brand of oil used. The treatment is simple, safe and inexpensive. **SILOO** is ideal for breaking-in new engines. For sale by leading jobbers everywhere and the White Motor Company branches and distributors.



SOLENTS FOR ALL TYPES OF PETROLEUM RESIDUES
Petroleum Solvents
CORPORATION

General Offices: 331 Madison Ave., New York 17
Plant and Laboratories: Port Reading, New Jersey
Petroleum Solvents Corp. of Canada, Ltd.
Dominion Square Bldg., Montreal



Production of the new Hyster Larison Compensating Axle—the unit assures equal load distribution on all eight tires and is for use on heavy-duty trailers—started April 1st, and immediate delivery can now be effected, according to Ernest G. Swigert, president of the Hyster Co. Brakes on all eight wheels which permits bigger loads on steep grades, longer tire life and the elimination of tire drag on crowned highways and on corners, easier load pull and lower tractor-trailer operating costs are claimed by the manufacturer

More Recaps

PROVED IN BOTH KINDS OF RUBBER!

The Exclusive Seiberling Heat-Vent has proved time and again that it is the *only* effective method yet devised for dissipating internal friction heat! Because cooler-running Seiberling Heat-Vented Tires—in *both* natural and synthetic rubber—stay “fresh” and strong longer, *they can be recapped more times*. That means double savings for you...more *original* miles and more *recap* miles on every wheel of every truck! Seiberling Rubber Company, Akron, Ohio.

SEIBERLING

Truck Tire



SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 142)

to expect that one flywheel marking will ever produce peak engine operation on all the various grades of gasoline used in this country. The method of spark timing must be arranged so that the mechanic can adapt his spark timing to his own operating situation and the grade of gasoline the company proposes to

use. You have not simplified the spark timing job by the use of a single mark on the flywheel, but you have complicated the job because you have given no additional reference marks by which consistent adjustments could be made to meet a local situation.

In connection with the method of adjusting the spark timing, it is obvious that the distributor must be arranged so that its basic position can be advanced or retarded while the engine is running.

Other Inspection Aids Needed

OTHER things that are needed are fixed alignment marks on both front axle and rear axle with reference to the frame. Not infrequently, it happens that axles slide a bit on their spring perches where the springs are used as the radius rod to control the position of the axle with reference to the frame. Specific check marks should be provided so that axle position with reference to the frame can be quickly checked with a steel rule. But, the parts of the vehicle should be marked so that a quick check can be made at regular PM inspection times.

Any part of a truck which needs frequent inspection, and by frequent I mean every 5000 or 10,000 miles, should be provided with fittings to which instruments can be quickly attached in order that a quick and accurate inspection of the condition of the parts can be determined. For example, rear bearings of transmissions or pinion bearings of differentials should be provided with perches to which dial indicators could be quickly attached in order to determine the side play and end play in these bearings. Only when we go to instrumentation on these kinds of units can we begin to develop anything in the way of standard wear limits. Tests made by instruments can be made quicker and can be made more accurately than by any old style cut-and-try fitting. To the maximum extent possible, any maintenance inspection should be set up on an instrument basis, and the manufacturer should provide suitable attachment

(TURN TO PAGE 150, PLEASE)



**AT A PROFIT TO SCORES OF OPERATORS
BECAUSE OF LOW MAINTENANCE COSTS
AND LONG LIFE . . .**



Edwards Trailers—even those put into service before the war—today require few replacements . . . few repairs. These low maintenance costs mean profits on every trip. Edwards sound construction plus tried and proved engineering principles make this possible. That's the reason for scores of operators switching to Edwards.

Production is going forward with all possible haste, but the demand still exceeds the supply. We therefore, urge you to place your orders as far in advance as possible.

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

EDWARDS

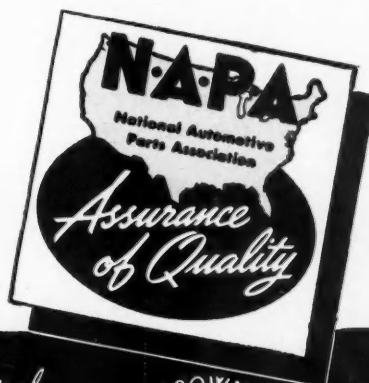


To keep you "Warmer in Winter—Cooler in Summer" the Johns-Manville Corp. uses 35 of these specially-designed Mack Trucks to "blow" rock wool into the crevices of your house. Engineered for all-round duty, these trucks not only carry the rock wool itself, the blowing machine, scaffolding, hose and reels, and retaining materials, but, by virtue of the special compartment in the front of the body, a crew of 5 men as well

- **ALL YOU HAVE TO DO**, to gain full benefit from the most highly organized and most comprehensive parts service in the industry, is to depend on your NAPA Jobber for your requirements . . . Your problems are his problems. He is an independent business man whose success depends on giving you the best possible service on the parts and materials you need for cars, trucks, buses and tractors of all makes . . . As part of the nation's largest independent parts organization, he is able to do it well. "Your NAPA Jobber Is a Good Man to know"—and the better you know him, the more it will profit you.

NAPA

is the largest Independent Parts Organization in the Industry!



American Brakeblok
BRAKE LINING • CLUTCH FACINGS
FAN BELTS • RADIATOR HOSE

DITTMER
TRANSMISSION GEARS

PURITAN
BRAKE FLUID

Allied WISCONSIN
PISTONS • SLEEVES

Buffalo
MUFFLERS

Allied RAYMOND
VALVE SPRINGS

MARTIN-SENOUR
AUTOMOTIVE FINISHES

Spicer
UNIVERSAL JOINTS

MicroTest
GEARS • AXLE SHAFTS

New Britain
HAND TOOLS

Belden
WIRE AND CABLE

MONMOUTH PRODUCTS
ENGINE BEARINGS
CLUTCH PARTS
BOLTS AND BUSHINGS

Allied A.P.C.
VALVES

TRICO
VACUUM OPERATED
SAFETY PRODUCTS

STANDARD
GREASE RETAINERS

DOUBLE DIAMOND
FLYWHEEL GEARS

Allied GRAPHO
WATER PUMPS
PARTS • PACKING

DETROIT
UNIVERSAL JOINTS

PRECISION
PISTON PINS
FEDERAL
BALL BEARINGS

BROWN LIFE
GEAR BOXES
BALKAMP
PARTS FOR FORD
*CHEVROLET • PLYMOUTH

CELORON
TIMING GEARS

DUCKWORTH
TIMING CHAINS

UNITED
PARTS FOR
HYDRAULIC BRAKES
FUEL PUMPS

SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 146)

places for the instruments in order that the work may be done rapidly and accurately.

Means for the quick inspection of the remaining thickness of brake lining is another thing that has been seriously neglected. Why should an operator have to remove the wheels from a vehicle in order to determine whether the brake lining is worn out?

One of the points that interested me in connection with one of the electric brakes has been the claim that when the brakes cease to be effective, it is an indication that the lining has worn out. No adjustments are required during the entire life of the thick brake lining, and when the driver reports poor brakes, it is time to reline.

The Bendix people have proposed an octagonal cam for adjustments on the end of their brake shoes. In this case, when the cam reaches its extreme position, relining will shortly

be necessary. This design has certain advantages. If a vehicle is in the shop for maintenance inspection, the shop foreman may think it desirable to sacrifice the last 32nd of an inch of brake lining in order to do the relining job at the time the vehicle was in the shop, rather than to have it come back in a few days for a repair job. In order to do this, he should have a quick visual means of determining just how much lining remains.

If all the units of a truck or tractor were properly set up for inspection purposes, I believe a complete instrument inspection and necessary corrective adjustments could be made in a couple of hours instead of the usual 8 to 12 hours that are now required. At the end of such an inspection, the truck owner would have a complete picture of the condition of his vehicle, and would have an idea as to how and when he will have to schedule overhaul work on any part of the vehicle.

Preventive maintenance work should be largely confined to three things: Inspection of the condition of the units; minor adjustments to compensate for normal wear and lubrication; and, then when the adjustments for normal wear are all used up, it is necessary to recondition the part of unit.

I do not agree with those persons who advocate calling anything they do on a truck to keep it in operation preventive maintenance, because by

(TURN TO PAGE 152, PLEASE)



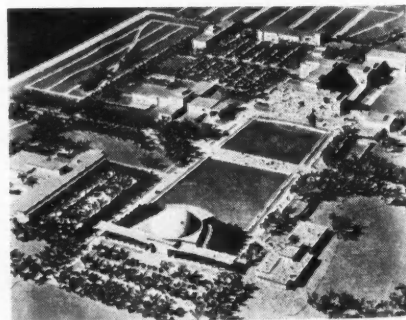
The Story of the Day's Work



You may say—"You betcha, we keep our trucks busy!" Yes, but *how* busy? When your truck has turned the corner and is out of your sight, how do you know what it is doing, the rest of the day? The plain truth is, you don't know. The fact that it may get back on time is no answer. It may have stood idle somewhere and then put on a burst of speed in order to check in on time.

No, the only way you can know *precisely* how busy, i.e., the exact amount of running time and standing time all day, is to equip the truck with a **SERVIS RECORDER**. The Recorder "*writes*" its own record, automatically, hence its chart gives you an absolutely *accurate* report—yes, even all the time-consuming little delays (down to 10 minute intervals). Get the full story in our free Booklet. **THE SERVICE RECORDER CO., 1375 Euclid Ave., Cleveland 15, O.**

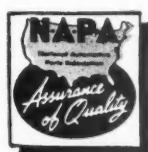
The Servis Recorder
Tells Every Move Your Truck Makes



General view of the new proposed \$50,-000,000 Ford Research and Engineering Center which is to be erected in Dearborn as soon as regulations permit. The dome-shaped structure in the foreground is the Engineering Exhibit building. The School is at the right and the Styling Building at the left. The cross-shaped structure, top left, is the Dynamometer (Engine Test) building. The Administration and Main Engineering building is situated opposite the domed structure

Got a tough job?

THINK OF *Monmouth*



Your NAPA Jobber is a Good Man to Know!

Monmouth service to the repair trade is complete on 3 major lines of replacement parts.

Complete service means far more than the supplying of parts for popular cars.

For example, here is King Bolt Set A-318 from our Chassis Parts Line. Where else in the parts industry can you find a complete set?

A-318 is complete for a 147½ inch rear engine drive Ford bus. It consists of 2 Monmouth Quality King Bolts, precision ground after heat-treating to insure straightness

and accurate fit; special split type double locked Clevite bushings; Timken tapered thrust bearings, lock pin retainers, shims, and expansion plugs. Nothing else to buy or search for in order to turn out a 100% job.

We specialize in providing Kits and Sets for these less common jobs on heavy duty vehicles.

Think of Monmouth when you have a tough replacement job—Engine Bearings—Clutch Plates and Parts—or Chassis Parts.

MONMOUTH PRODUCTS COMPANY • Cleveland, Ohio

**FOR ENGINE BEARINGS
CLUTCH PLATES AND PARTS
CHASSIS PARTS**

Monmouth
Trade Mark *is the name*

SIMPLIFIED INSPECTION

(CONTINUED FROM PAGE 150)

such a definition we find ourselves accepting premature failures as a normal occurrence. Bear in mind that the truck operator purchases his piece of machinery to operate and not to repair. He recognizes that certain maintenance and servicing work is necessary and he also recognizes that many factors may affect wear and, as a result, it is necessary,

at frequent periodic intervals, to inspect the condition of a unit in order to determine that wear if any has not exceeded a usable limit.

Simple Testing Equipment

PREVENTIVE maintenance testing equipment and instruments need to be made simple. Those fancy boxes that are put out by certain instrument manufacturers to impress passenger car owners with the quality of equipment in the shop are not needed in truck work. Here, there is a need

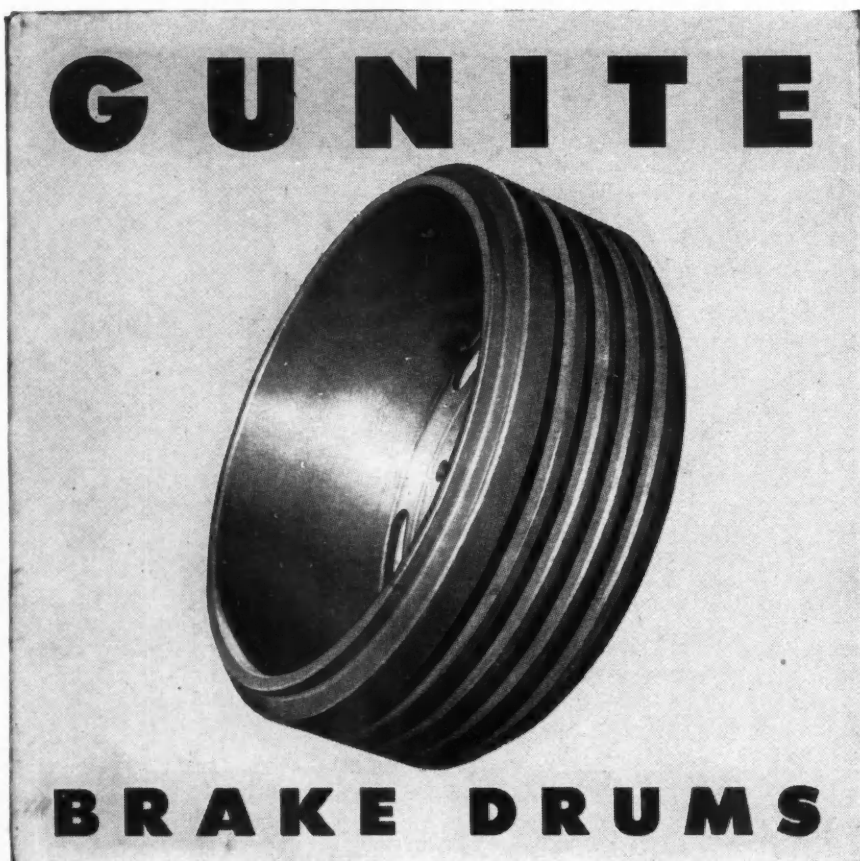
for basic instruments calibrated to basic values, and not calibrated to various percentages or to markings such as good, fair, and bad. If instruments are calibrated into basic units of measurements, the mechanics will quickly learn what value is good or bad, and, in addition, will then have on the instrument a scale by which to make corrective adjustments. Furthermore, all testing equipment should be developed to be used on the vehicle. Testing equipment which makes it necessary to take the part off the vehicle, move it to a bench, make the test and return to the vehicle, is not satisfactory because it does not show the condition of the unit in place on the vehicle and, hence, does not give a complete diagnosis of the condition and operation of the unit and its supporting members. Even the job of wheel balancing can be done on the vehicle.

All units can be tested on the vehicle. This does not mean that all can be readjusted satisfactorily on the vehicle. For example, voltage regulator settings can be tested on the vehicle to determine if they are within the allowable limits. However, whenever a regulator is found out of adjustment I would never recommend that it be adjusted on the vehicle because of the variable factors which may not be fully controllable on the vehicle for adjustment purposes. It would probably be much simpler to exchange a misadjusted regulator for a correctly adjusted regulator rather than to attempt to adjust the old regulator.

Carburetor float levels are one of the things that go out of adjustment on commercial vehicles. I see no reason why a peep hole could not be provided in the carburetor float bowl so that at inspection periods the vehicle could be placed on the level floor and the engine operated to determine whether the carburetor float level is within acceptable limits. When the float level is found to be incorrect, then is the time to remove the carburetor and overhaul it. Certainly, there is no economy in removing a carburetor at periodic intervals merely on the supposition that maybe something is wrong. Means should be provided to determine its operating condition on the vehicle.

END

(Please resume your reading on P. 65)



PROVED BY USE

Many of the present steady users of GUNITES were at first skeptical of the claims we made — that these drums would *reduce costs, give better braking efficiency, eliminate drum breakage*. We urged that they try a set on their toughest runs, and let the drums themselves prove in actual use that our claims were not exaggerated. Outstanding performance and economy earned increasingly wide acceptance, so that GUNITES now are favorably known throughout the transport industry. *Buy GUNITES — for better braking!*




GUNITE BRAKE DRUMS . . . FOR TRUCKS, TRACTORS, TRAILERS, and BUSES

Planning to buy new equipment?

Plan, too,

to protect it

with

DOUBLE-DUTY OIL!

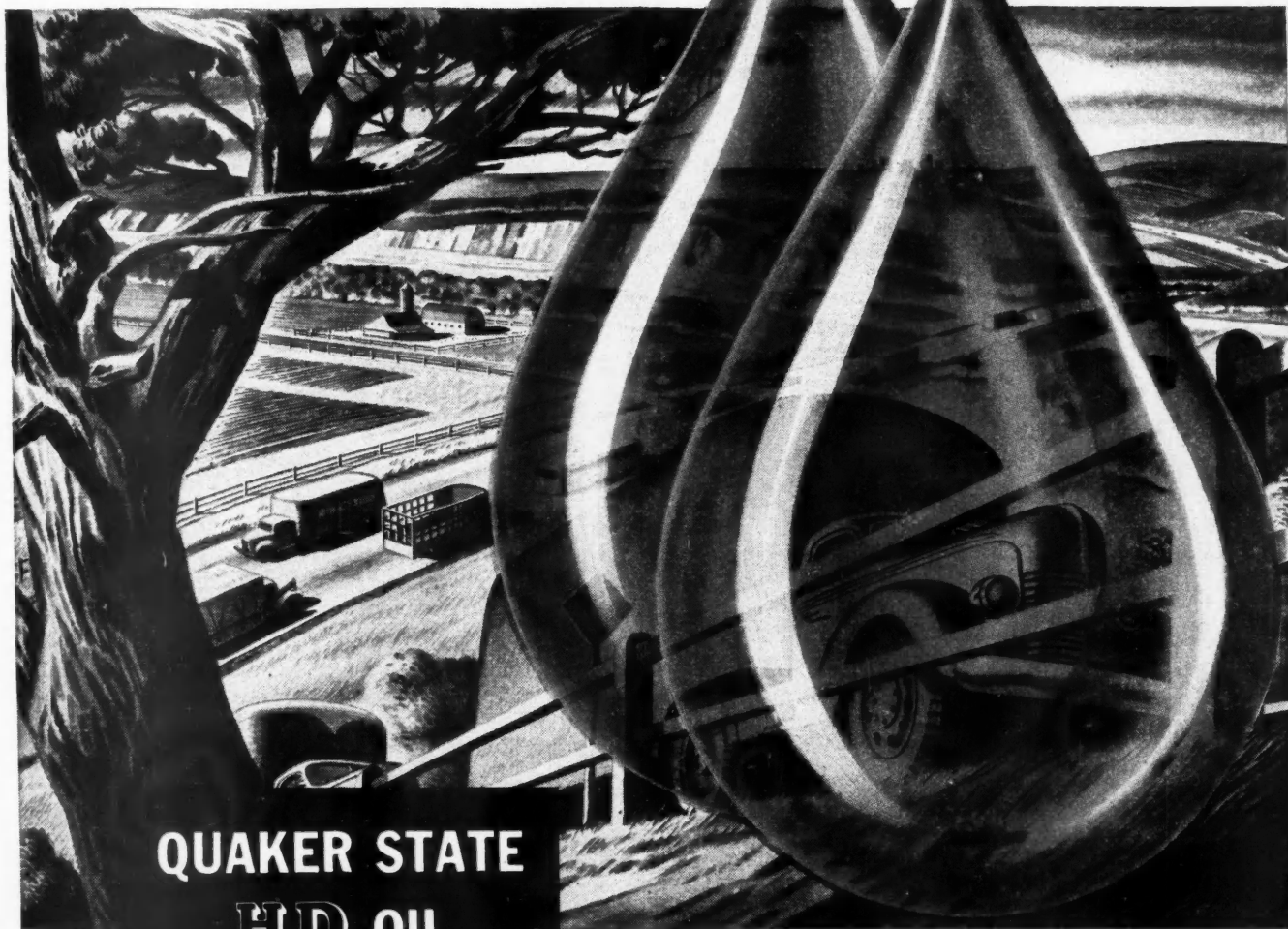
If you are planning to buy new buses, trucks, or tractors, it will pay you to make Quaker State HD Oil part of your plan . . .

Remember that Quaker State HD Oil is the DOUBLE-DUTY oil that did so much to keep hard-working engines running in top-notch condition during the past four years, when the going was really tough. It's the oil that not only kept them lubricated better, but kept them *cleaner*.

Quaker State HD Oil contains a wonderful detergent that keeps vital working surfaces free from clogging, trouble-making dirt, carbon, sludge, and sticky varnish.

So you get better engine efficiency, with less maintenance expense, less worry, longer equipment life.

If you want your new equipment to give you the best service at lowest cost, give it the protection that only a really good DOUBLE-DUTY oil can give. Give it Quaker State HD Oil.



**QUAKER STATE
HD OIL**

AND QUAKER STATE SUPERFINE LUBRICANTS

Quaker State HD Oil for your trucks, buses, and tractors
Quaker State Motor Oil for your passenger cars

QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA

JULY, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

153

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 62)

plifying cab design and installation. An updraft carburetor and a side-mounted distributor and water pump provide a good start toward securing clear floor space in a cab.

Seats the full width of the cab, rather than individual bucket seats, are desirable as an aid to drivers in sliding from driving position to curb

side of cab, as well as being a great convenience when extra helpers are carried which frequently occurs in a local operation. Driver should be seated as close to the left side of the vehicle as possible. Such a position is extremely helpful when backing into platforms and signalling for turns. Much wider cabs than ordinarily used and steering gears mounted outside of frame are necessary if anything like a good left-hand seat position is to be obtained.

VISION AND HEADROOM: Windshield

glass should extend as low down and as high up as possible. Ample driver headroom should be provided. As a rule, standard cabs do not have sufficient headroom in them. A low cab looks fine on a bare chassis but when a body 8 ft. high is mounted behind it the appearance is bad. Most bodies are from 7 to 8 ft. in height and a high-mounted cab with ample headroom, which provides numerous advantages for the driver in the matter of road vision and roominess, greatly improves the appearance of a complete vehicle.

INTEGRAL CONSTRUCTION: With this type of construction, where the cab is an integral part of the body, driver seating and control arrangements are usually far better than in separate standard cabs. Is there any reason why separate cabs cannot be built very much like the front end of the integral cab-body type van? Practically all bodies are built to take full advantage of the 96-in. width allowance and cabs approximately 7 ft. in width could be provided to the advantage of all concerned.

REAR-VIEW MIRRORS: Rear view mirrors with a diameter of at least 5 in. are a necessity. Such mirrors should be mounted on long hinged arms and in a staggered position so that when trucks are parked close together the mirror on one truck will not interfere with its neighbor. It is good practice to mount the left mirror low and the opposite one high.

Why not a periscope arrangement of some kind? Properly designed, an accessory of this character would
(TURN TO PAGE 156, PLEASE)



Herbrand

TOOLS OF QUALITY

Superior modern tools (HERBRAND) add to a mechanic's skill and help him to save time and effort while turning out better quality work.

The best tools (HERBRAND) are designed and manufactured by expert craftsmen for expert craftsmen. Tools that excel

(HERBRAND) are better balanced, tops in design, utility, strength, performance.

Good mechanics know and appreciate good tools . . . and of course demand HERBRAND.

Ask your HERBRAND jobber or write us.



THE HERBRAND CORPORATION
FREMONT, OHIO



The Clark Climate Controller, designed by the Clark Climate Control Co., Milwaukee, Wis., is offered to the aviation industries as a solution to the vital problem of adequate cooling, de-humidifying, ventilating and heating air liners while they are at airports. The stewardess of the plane can set the thermostat at whatever temperature is desired and the Controller does the rest.

*How bright
are you
about
lights?*



ACCURATELY MOLDED
LENS FOR SAFE
ROAD LIGHTING.

STURDY METAL
REFLECTOR AND
METAL LOCATING
LUGS MINIMIZE
BREAKAGE OF UNIT.

PERMANENTLY AND
ACCURATELY FOCUSED
BULB, SPECIALLY
DESIGNED FOR LONG,
EFFICIENT USE.

ALUMINIZED REFLECTING
SURFACE PROVIDES HIGH
EFFICIENCY THROUGHOUT
LIFE OF UNIT.

LENS AND REFLECTOR
PERMANENTLY SEALED
TO KEEP OUT ALL DIRT,
DUST AND TRAFFIC FILM.

REMEMBER THESE FACTS AND YOU'LL KNOW ALL THE ANSWERS

There's **NO DIM-OUT** with Guide Sealed Beam units. Guide Sealed Beam headlamp units *stay* bright. They keep on providing proper illumination because they are *permanently sealed* against dust, dirt and traffic film.



There's **NO BLACK-OUT** with Guide Sealed Beam units. With Guide, a cracked lens does not make a "one-eyed" driver. A separate bulb inside the unit continues to afford safe lighting until the damaged unit can be replaced.



Protect your drivers, your passengers and cargo with Sealed Beam lighting at its best. Replace damaged units with Guide Sealed Beam units. They give you *extra protection at no extra cost.*

Safe Headlamps are "Correctly Aimed" Headlamps
—Check Your Headlamps Today

GUIDE LAMP — A UNITED MOTORS LINE
Guide Sealed Beam replacement units
and Guide lamp service parts are sold
by United Motors Service distributors.



LET SAFETY SHARE THE RIDE—REPLACE WITH GUIDE

Guide
LAMP
DIVISION OF GENERAL MOTORS
ANDERSON, INDIANA

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 154)

be of great value from the safety as well as the expense angle. Mirror replacement is an important expense item and a periscope should last the life of several vehicles thus justifying a considerable initial investment.

VENTILATORS AND DEFROSTERS: Cabs should be equipped with good ventilators and defrosting devices. In local work a heater is not im-

portant but might as well be provided as long as defrosting equipment is to be installed. Defrosters should, of course, be as adequate as possible and work at least as well as the best of those on passenger cars.

BODY DOORS (REAR): In cases where rear doors are required on a body, the overhead type such as used by the Railway Express Agency is of tremendous advantage to a driver. When working on the streets such doors can be opened without swinging into oncoming traffic or hitting

pedestrians and of almost equal importance is the fact that they can be raised while a truck is backed into a high platform. With hinged doors it is necessary in many cases for a man to leave his cab, open his rear body doors, fasten them securely to the sides of the body, re-enter his cab and back in. Even this assumes that the doors are of the type which can be swung around parallel to the sides of the body, which is not always the case.

STEERING GEAR: Oversize steering gears with as much leverage as practical should be provided. A driver expends a lot of energy in a day of local work maneuvering his truck in and out of tight spots and anything that can be done to reduce steering effort is well worthwhile. Perhaps power steering is the best solution.

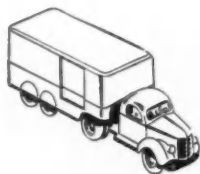
FRONT AXLES: Wide tread front axles of greater capacity than the present standard production should be provided. With such an axle, wheel cut can be increased to the maximum to the great advantage of a driver maneuvering in congested areas. Furthermore, a wide tread front axle makes it possible to mount the steering gear on the outside of the chassis frame, thus bringing the driver toward the left side of the vehicle where he belongs.

CLUTCH: The clutch should be designed to function with the least effort possible. Perhaps booster aid or hydraulic operation should be employed in this connection.

TRANSMISSION: Gears should shift easily. In local work there is no necessity for a five-speed transmission. For door-to-door delivery operation, a heavy-duty, three-speed unit should be developed and for trucks in miscellaneous hauling service a specially designed four-speed unit would be ideal. Somewhat different gear ratios than those used in the present production type of four-
(TURN TO PAGE 158, PLEASE)



FOR HEAVY DUTY JOBS RUSCO ACE INDUSTRIAL BRAKE LINING



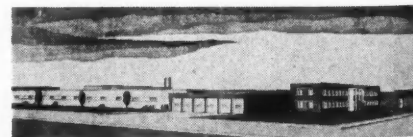
Rusco Ace Industrial Brake Lining is manufactured to do the job *better* . . . and to do it *better longer!*



"The Standard of the Industry"

Top performance and ability to wear have made this quality, heavy-duty, woven-molded brake lining the best known in the industry. Especially suitable for use on trucks, buses and industrial applications, it comes in sizes from 2" x ¼" to 6" x ½", as well as in 12" widths for conversion to popular widths.

The RUSSELL MANUFACTURING CO., Middletown, Conn.



The new plant and office of the Lindsay Corp., now under construction on a 7½-acre tract in Melrose Park, Chicago suburb. The company expects to begin production of Lindsay Structure in the new plant by the middle of July

ONE MORE REASON
Why it PAYS to Use
"Vibro-Centric"*
Valve Seat Grinders!

NEW

"Gruv-Top"* PILOTS

Mean More Profits

For You . . .

PLUS

**Faster, Better Work
Fewer Pilots Needed
No Time Lost Compensating for Worn Guides**

New Black & Decker "Gruv-Top"* Pilots make "Vibro-Centric"* Valve Seat Grinders simpler, speedier, more precise than ever . . . Employing an expanding-sleeve principle that makes self-centering automatic, Gruv-Top Pilots help put new profits in your valve jobs. Here's why:

Vibro-Centric is Fastest Because: (1) Gruv-Top Pilots center themselves automatically, compensate for worn guides without lost time or motion; (2) Full-Powered Driver grinds at top speed—only a few seconds per seat; (3) Built-in Vibrating Action reduces stone loading and stone wear.

Vibro-Centric is Most Accurate Because: (1) Concentric Plunge Grinding is most accurate; (2) Gruv-Top Pilots find *true* center of valve guide; (3) Accurate Dressing Stand puts true angle on seating stone.

Vibro-Centric is Most Profitable Because: (1) Gruv-Top Expanding Sleeve Pilots eliminate a costly stock of "plus and minus" pilots; (2) "Factory-accuracy" does perfect work *the first time*; (3) Vibro-Centric speed does more jobs per day.

Exceptionally heavy demand for that kind of performance still keeps the supply of these Valve Seat Grinders scarce . . . but get complete information on new Gruv-Top Pilots from your nearby Black & Decker Distributor. And send for your free copy of our illustrated book, "The Principles of Valve Reconditioning," to: The Black & Decker Mfg. Co., 632 Pennsylvania Ave., Towson 4, Maryland.



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PORTABLE ELECTRIC TOOLS

* Trade-Mark Reg. U.S. Pat. Off.

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 156)

speed transmissions would be desirable as no drag gear is necessary in most local service and the usual second gear ratio is a little too high. High road speeds are not called for in local work, so gearing can be such that good performance can be obtained with a relatively small engine. The engine must, however, be

large enough to produce really good acceleration.

SPRINGS: Springs should be designed to provide the easiest ride possible. Experience has convinced us that, to secure the desired riding qualities and the minimum of breakage, longer springs with more and thinner leaves than those used in normal production are desirable.

Maintenance Angles

DAILY SERVICE ROUTINE: A lot of labor-hours are expended in daily

filling of gasoline tanks, radiators and cranks. A considerable amount in initial investment is justified to reduce the frequency of these service operations.

Tanks sufficient to carry several days' supply of fuel would be helpful on short mileage work. Fuel tanks should be so designed as to accept fuel at a fast rate. Filling tanks at the rate of 20 gal. per minute, as compared to 8 gal. per minute, results in a substantial saving over the life span of a truck.

A reserve tank for lubricating oil could be used to advantage in connection with a device to maintain a constant crankcase oil level.

A surge tank should be provided in connection with the radiator, not only to conserve anti-freeze in the winter but to maintain the correct water level in the radiator at all times.

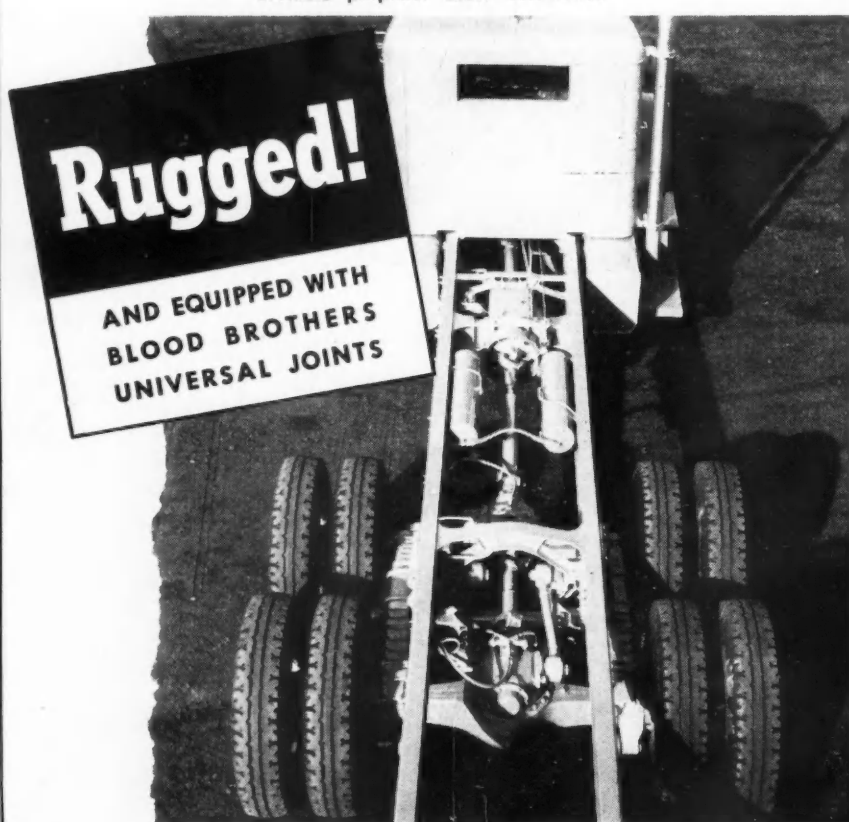
An automatic battery filler is helpful. Such a device constantly maintains the water level in batteries at the correct point and increases battery life. The type in which an inverted bottle is attached to the top of each cell is a good one.

TIRES AND TUBES: Tires of adequate size should be used. Although overloading does not result in as serious damage to tires used in local service as to those on long, hot runs there is still considerable money to be saved by using tires of the correct capacity for the load to be carried, even in strictly local service.

Chassis and body weight should be so distributed as to provide reasonable traction when vehicle is running light. This improves tire life as it tends to reduce wheel slippage.

(TURN TO PAGE 160, PLEASE)

STERLING Truck Chassis showing three Blood Brothers propeller shaft assemblies.



There is a Blood Brothers needle bearing universal joint for every automotive application—write for complete specifications.



FOR EVERY NEED OF
POWER THROUGH ANGULARITY

**BLOOD BROTHERS
UNIVERSAL JOINTS**

BLOOD BROTHERS MACHINE CO.

ALLEGAN, MICHIGAN

DIVISION OF STANDARD STEEL SPRING COMPANY



Lee & Cady of Detroit, one of the nation's largest food wholesalers, employs a "shuttle" system with Fruehauf trailers for deliveries to 15,000 stores in Michigan, Ohio and Indiana. In their Detroit operation, each truck-tractor handles two trailers. With this method trucks and drivers are never idle. While half of the trailer fleet is being loaded at warehouse docks, the drivers are out making deliveries with other units.

COOLER RUNNING



COOPER TRUCK-BUS TIRES

Cooper tires for truck-bus service last longer because they run cooler.

Cooper truck-bus tires run cooler because they are precision-built to protect against the causes of excessive heat, ruggedly constructed also to better stand the normal heat that develops in any tire on long, high-speed runs.

Heat-building stresses and strains are uniformly distributed throughout the rugged cord body of a Cooper truck-bus tire, equalized to protect against "hinge spots" and resulting high heat areas.

The rayon cords of the tire body are completely insulated, completely armored with special rubber to protect against high friction heat.

The use of armored rayon cord also makes possible a more compact Cooper truck-bus tire. There is less bulk, less heat.

Moreover, the tread of every Cooper truck-bus tire is designed to be self-ventilating, cools itself.

Longer mileage, reduced costs, more profitable payloads are the important benefits derived by the use of cooler-running Coopers. See your independent Cooper dealer the next time you need truck-bus tires. Get Coopers . . . get a better run for your money.

SPECIAL FEATURE



1. Original Design



2. Built-Up Design

Two designs are molded into the extra-thick, extra-rugged tread of the new Cooper All-Duty. A new tread design builds-up as the original wears slowly and evenly away—giving truck owners an extra dividend in longer mileage, greater safety on the highway.



THE COOPER CORPORATION

Factories at Findlay, Ohio

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 158)

Puncture-sealing tubes are also extremely valuable to any operator. In one large operation, where every road failure is recorded, it was found that road calls occasioned by flat tires during the latter war years, when such tubes were not available, increased from the prewar figure of 900 driver days per call to 300. In

other words, flat tires on the road occurred three times more frequently. The prevention of flat tires is so important that considerable initial expense in tube equipment is justified to prevent them.

We must keep in mind that when one tire of a pair of duals goes flat on a heavily-loaded truck that its mate almost invariably blows out before the driver discovers that he has a flat. Many unexplained blow-outs of practically new tires have occurred for this reason. A metal

spacer between inside beads to prevent side-wall collapse, as on some ordnance vehicles, might be well worthwhile when punctures do occur.

SERVICE BRAKES: Service brakes with as much lining area as practical should be provided. Power application should be employed for vehicles of over 12,000 lb. gross. To reduce service labor on hydraulic brakes an automatic filler for the master cylinder should be installed in the cab, linings should be bonded instead of riveted to shoes if some of the new adhesives are proven to be adequate for this purpose and all hydraulic lines should be equipped with check valves to eliminate the necessity of bleeding the entire system whenever any one line is removed. Automatic brake shoe adjusters should be of value.

PARKING BRAKES: An effective parking brake should be provided. In areas where it is legal, the lever should actuate the rear service brake shoes by mechanical action. Hand lever should rest in deep notch when brakes are set rather than depend on pawl and ratchet. This means brake is either off or on, no in-between point. If pawl and ratchet must be used they should be made of the best material and as heavy as possible.

CRANKCASE VENTILATION: Good crankcase ventilation is particularly important to truck operators in local work where stops are frequent and it is difficult to maintain normal engine temperatures. Donaldson valve installations have been effective in the reduction of sludge in some operations and such a valve, when used in connection with an air cleaner on the crankcase breather, produces

(TURN TO PAGE 162, PLEASE)

PRACTICAL DAN SAYS:

"HERE'S ANOTHER LABOR-SAVER"

The Kleeer-Flo
CARB-U-TATOR

SHOWING
CARB-U-TATOR
FITTED AS
AUXILIARY TO
KLEER-FLO
MODEL KS-30

\$29.95
F.O.B. MINNEAPOLIS

COMPLETE WITH
ACCESSORIES

PRACTICAL DAN
The KLEER-FLO man

For fast cleaning of carburetors, fuel pumps, hydraulic brake and any other carbonized parts. Portable, compact. Dimensions: 18"x16"x11". Part-size is only limit to capacity.

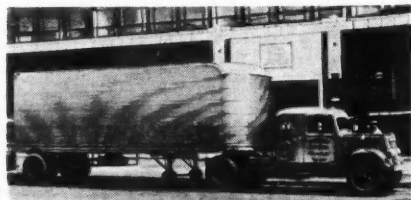
Turbulence is produced by metered air-action, with regulating-valve control, subjecting parts to constant action of working fluid with greatly increased scrubbing effect.

AUXILIARY TO ALL KLEER-FLO MODELS OR FOR BENCH USE

Kleeer-Flo HI-T CARBUSOL

An especially developed cleaning compound for removing carbon, gummy residues, paint, analine dyes, varnish, "caked" dirt, grease and oil from automotive parts and metallic assemblies. A cold cleaner, non-toxic, non-evaporating, not injurious to metal. Recommended for use in *Kleeer-Flo* CARB-U-TATOR. Write for details.

Practical Products Company
—MANUFACTURERS OF MECHANICAL PARTS CLEANERS, CLEANING COMPOUNDS, KOOL-ANT PUMPS—
2632 NICOLLET AVENUE • MINNEAPOLIS 8, MINNESOTA



A chain smoke—more than 300 miles long—travels the highways between Winston Salem, N. C., and Detroit several times a week in each big Fruehauf "rubber-tired packing case." Roadway Express keeps a steady flow of nationally-known brands of cigarettes rolling over this 800 mile delivery route, well protected in the big trailers in their fleet. Each trailer is equipped with an electric alarm system which starts a loud warning siren, should the load be tampered with

**FOR *UTMOST* RELIABILITY
IN THE
HEART OF THE
FUEL SYSTEM**

AVAILABLE FROM THE
AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in*, from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

FOR REPLACEMENT—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

FOR REPAIRS—use AC Diaphragm or Parts Kits.

QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer patented-impregnation diaphragms of special airplane cloth.
- Carefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

AC
FUEL
PUMPS

SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Division, G. M. Corporation
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

- | | |
|--|--|
| <input type="checkbox"/> How to Service Spark Plugs | <input type="checkbox"/> HOW TO SERVICE FUEL PUMPS |
| <input type="checkbox"/> How to Service Spark Plug Cleaner | <input type="checkbox"/> How to Service Air Cleaners |
| <input type="checkbox"/> How to Service Oil Filters | <input type="checkbox"/> How to Service Speedometers |
| <input type="checkbox"/> How to Service Ammeters and other Instruments CQJ-7 | |

NAME _____

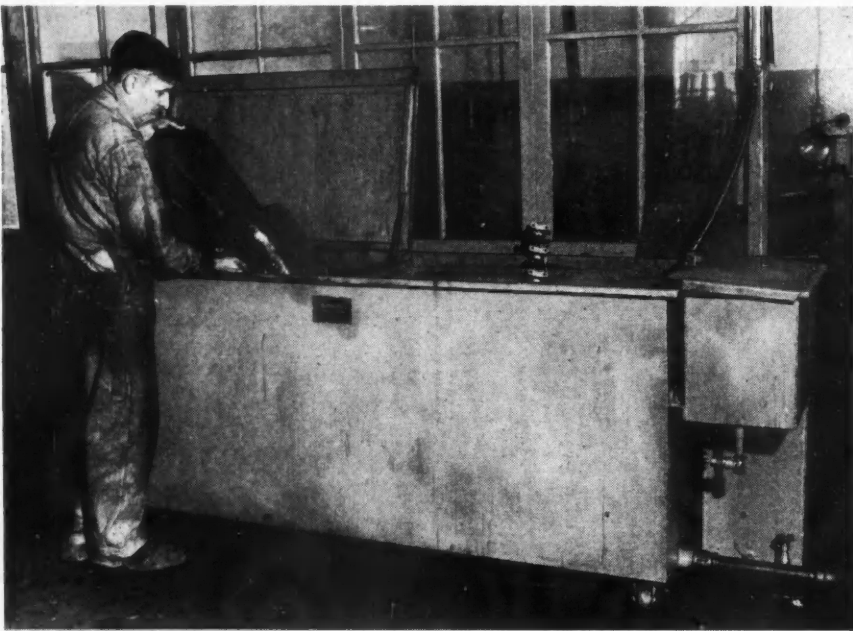
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THE MAGNUS KOL-DIP CLEANING SYSTEM



A SIMPLE CLEANING SET-UP FOR ALL ENGINE PARTS

HERE is a simple, portable piece of equipment that will do a thorough, time and labor saving cleaning job on **ALL** your cleaning jobs on motors and parts.

The first large tank handles all parts to be cleaned. There Magnusol softens and loosens the greasy, oily dirt in a soaking operation. The second large tank is used for rinsing. Parts from the Magnusol tank are flushed clean with a pressure rinse of water, and except for those parts with carbonized oil, "varnish" and other stubborn deposits, are ready for repair or assembly.


Carburetors, fuel pumps, pistons, rocker arm assemblies and other parts with remaining deposits are soaked in Magnus 755 in the small tank. Loosened dirt is pressure rinsed off in the rinse tank.

The Magnus Kol-Dip Cleaning System is applicable chiefly to shops where the volume of parts to be cleaned is small. For medium and large volume, the Magnus Hot-Dip Cleaning System and the Magnus Aja-Dip Cleaning Machine are available, each using Heavy Duty Alkaline Cleaner and Magnus 755.

Write for complete details, giving us the number of engines you want to clean per day.

1921-1946

TWENTY-FIVE YEARS OF SERVICE TO INDUSTRY



MAGNUS
Fleet Cleaners & Machines

MAGNUS CHEMICAL COMPANY
38 SOUTH AVENUE, GARWOOD, N. J.

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 160)

good results in keeping the amount of sludge in the crankcase and engine at a minimum. There is little doubt that reduction in sludge deposits decreases the maintenance problem.

ACCESSIBILITY: It is important to provide enough clearance between accessories and engine, frame and cab to permit the easy removal of the former for repair. Care must be taken to avoid covering any accessories by permanent cab and body structure thus making it extremely difficult to remove them.

On many trucks it is almost impossible to remove all of the spark plugs. Fan belts are hard to replace. Brake master cylinders are in inaccessible positions. It is often impossible to operate a boring bar or valve seat refacer on the last couple of cylinders.

Valves themselves are too often inaccessible for adjustment or replacement. On many engines it is impossible to replace the rear core plug without removing the bell housing. Plugs in such positions should be threaded in and made of heavy enough material to resist rust indefinitely. Maybe the plugs should be made of stainless steel or other suitable rust resistant material.

A tilting cab or hinged fenders and splash pans should be used if no better method of making engines accessible can be devised.

WIRING: First class cable of ample size and variegated colors should be provided. All wire should be run through fabric loom. Metal armored cable should be avoided as short circuits are difficult to trace where this is used. All circuits should be brought to a central panel and fused individually. A couple of extra circuits should be run to the panel for possible future use.

An accurate wiring diagram should be provided and permanently attached to the cab. A lot of pains are taken to wire a building properly, while little thought is given to the wiring of trucks. Actually more thought and care should be given to truck wiring than to that of buildings, as a building at least stands still while constant vibration exists in a truck which leads to chafing

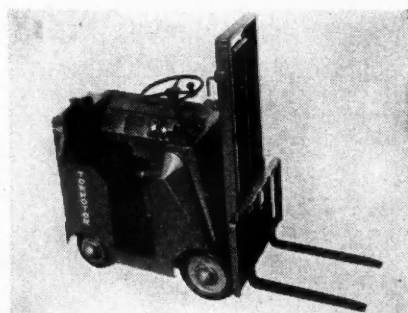
(TURN TO PAGE 164, PLEASE)

Announcing...

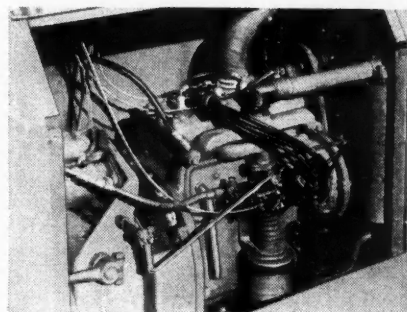
The New **TOWMOTOR** LT-35 LIFT TRUCK



Compact and lightweight---makes it economically sound for every industry, regardless of size, to enjoy the advantages of modern, mechanized materials handling.



Unique design provides plenty of clear, accessible space for the operator while retaining small overall dimensions and low center of gravity for maximum stability.



Engine and transmission in the LT-35 are easily accessible for inspection, adjustment and maintenance.

The new Towmotor LT-35 Lift Truck can lift, carry and stack 1500 to 2000 pound loads with ease, yet it is so compact and lightweight that it may, with utmost safety, be operated under full load on freight elevators of limited capacity, on upper floor levels where low load limits are imposed, or directly into motor trucks:

Because of its size and ability to operate in confined areas, the LT-35 makes it economically sound to provide mechanical handling on jobs where manual handling, with its excessive labor costs, was formerly the only available method. The small, agile LT-35 can save time, money and manpower on your operation by taking over countless han-

dling tasks, accomplishing them in less time, with far less effort and at lower cost.

The new LT-35 is the smallest of the complete line of Towmotor Lift Trucks and Tractors, each a product of the experience and "know-how" that Towmotor has gained in solving handling problems in every industry. Send for your copy of the Towmotor Lift Truck ANALYSIS GUIDE today. Towmotor Corporation, Div. 15, 1226 E. 152nd Street, Cleveland 10, Ohio.

**TAKE IT UP WITH
TOWMOTOR
THE ONE-MAN-GANG**

12 ★ FEATURES

- ★ COMPACT
- ★ LOW STEP UP TO OPERATOR'S STATION
- ★ LIGHTWEIGHT
- ★ RUGGED CONSTRUCTION
- ★ MANEUVERABLE
- ★ 4-WHEEL STABILITY
- ★ AMPLE SPACE FOR OPERATOR
- ★ EASY REACH CONTROLS
- ★ HYDRAULIC LIFTING AND TILTING MECHANISMS
- ★ MAXIMUM ACCESSIBILITY FOR INSPECTION AND MAINTENANCE
- ★ SHORT TURNING RADIUS
- ★ ENGINEERED TO THE JOB BY TOWMOTOR

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 162)

through of insulation and frequent loosening of connections.

BATTERY: Batteries should be of the heavy duty 17- to 21-plate type and have a capacity of at least 150 amp. They should be equipped with permanent pigtailed of ample capacity. It is not, of course, good practice to lift a battery by the terminals but

mechanics will do it anyway, so the pigtailed might as well be made strong enough to serve as handles.

Batteries should ride in heavy steel trays coated with vulcanized rubber and equipped with drain tubes to lead excess acid away from metal cab and chassis parts. They should, of course, be located in an accessible position where they can be easily filled or removed for service. The latter, however, should be necessary only at infrequent intervals if a generator of ample capacity is used.

GENERATORS: Generators on trucks in local service should have an output of at least 40 amp. and be of the low-cut-in type.

DASH SIGNALS: Audible signals and lights, instead of conventional gages, should be installed on the instrument panel to indicate low oil pressure, engine over-heating and generator failure. Drivers engaged in local work simply will not pay any attention to the instrument panel unless attracted by noise or lights.

ODOMETERS: In local work, speedometers are probably unnecessary. A lot of grief would be eliminated if all trucks were equipped with first class odometers, recording accurate mileage only. Something should be done to make a wider selection of speedometer gears available. It is extremely difficult to secure correct gears when tire sizes are changed. An accurate mileage record is so important to any operator who desires to maintain accurate operating statistics that considerable expense is justified in securing such a record. Odometer and speedometer gears and cables should be much more durable than they are.

SIGNALS AND LIGHTS: Much can be done to design better directional signal and clearance lights for trucks. Possibly signals should be made entirely of glass except for the base. The base or back plate could well be made of heavy metal permanently attached to cab or body. Clearance lights, in particular, are frequently broken and replacement time and expense would be greatly reduced if it were possible to simply attach a new glass fixture, something on the order of a sealed beam unit, to a permanent plate by means of a couple

(TURN TO PAGE 166, PLEASE)



TRACTOR BOLTS AND HI-NUTS *now available in quantity*

Hexagon Head Tractor Bolts and SAE Hi-Nuts are made by Lamson & Sessions to original equipment specifications. They match original parts exactly—in steel analysis, heat treatment and dimensional tolerances. The demand for these bolts and nuts is steadily increasing. Due to the rough treatment all tractors get and to their increasing use on road building and excavating operations, tractor owners use these parts in large quantities. Ask for specification sheet describing both of these products and showing list prices.

THE LAMSON & SESSIONS COMPANY, 1971 West 85th Street, Cleveland 2, Ohio
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

CAP AND SET SCREWS • SEMI-FINISHED NUTS • COTTERS • LOCK NUTS • STUDS • CLIP BOLTS

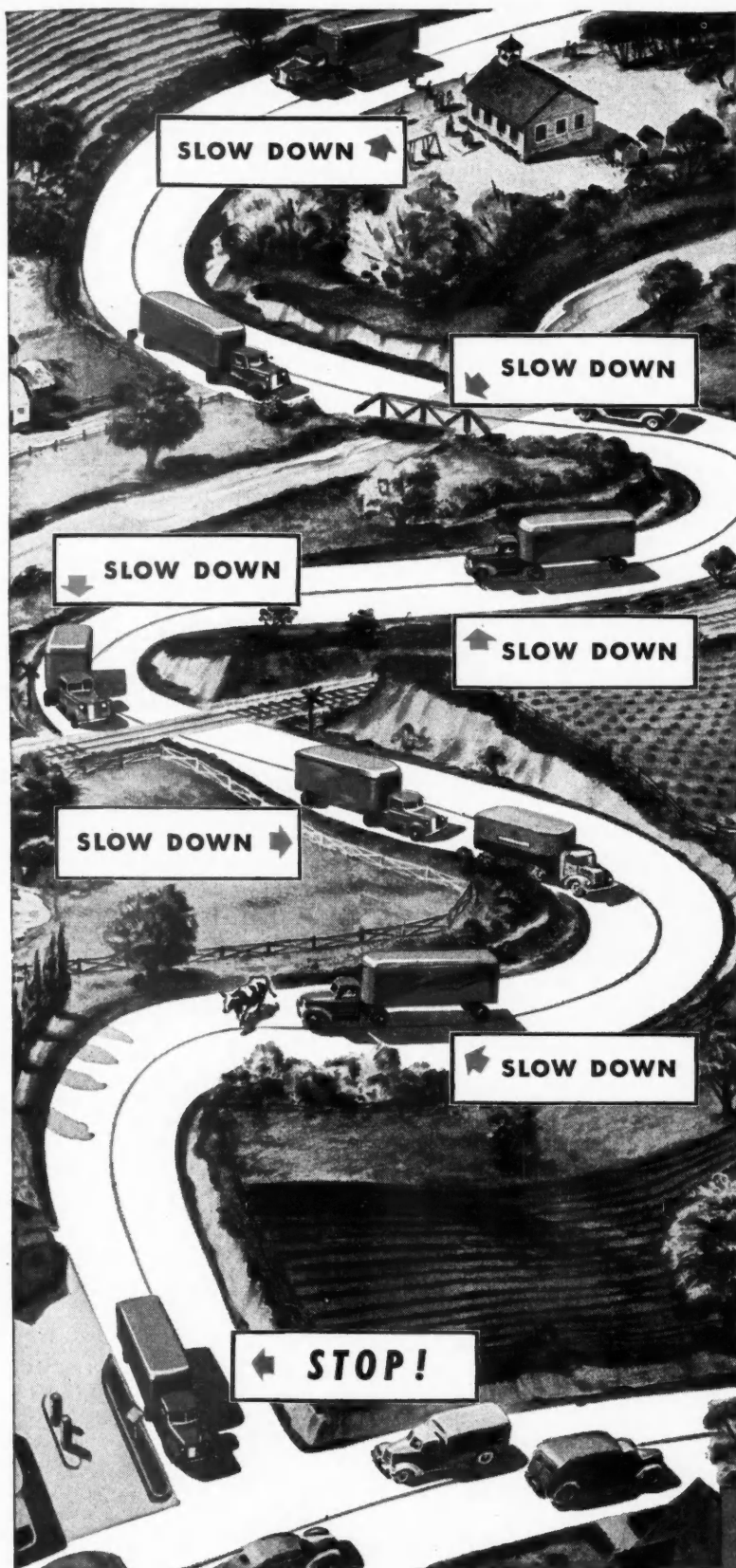
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Ask your Jobber for the Lamson Line

SPRING CENTER BOLTS • BATTERY BOLTS • LICENSE BOLTS • WASHERS • TRACTOR BOLTS • HI-NUTS



"I got him to trace that cock-eyed wiring!"



PG PROVING GROUND TESTED

**BRAKE LINING • BRAKE BLOCKS
CLUTCH FACINGS • FAN BELTS • HOSE
For Cars, Trucks, Buses and Tractors**

**RIGHT FOOT
LIGHT FOOT**

**6 TIMES
OUT OF 7**

**GET FULL-RANGE BRAKE
CONTROL . . . WITH RAYBESTOS**

● Six times out of seven, you use your brakes to *slow down*—to ease a bump, 'round a curve, or pass a highway obstruction. You actually drive with your brakes—control your truck with a touch of your foot.

Drive with the confidence of *full-range* brake control . . . reline with Raybestos. Raybestos gives you easy, positive *slow downs*, as well as quick, smooth stops.

Only Raybestos builds all types of brak materials necessary for this *full-range* control on every installation. Raybestos, alone, gives you the right combination of the right materials in Proving Ground Tested Truck Sets for light and medium trucks, in Heavy Duty Blocks for buses and bigger trucks.

THE RAYBESTOS DIVISION
of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

RELINER WITH

Raybestos

AMERICA'S BIGGEST SELLING

BRAKE LINING

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 164)

of brass screws. It is quite a job to apply replacement clearance lights of the usual design to a body as the work must be carefully done if leaks are to be avoided.

MUFFLERS AND EXHAUST PIPES: These items probably should be made of stainless steel. The additional expense involved by the use of this

material would be nominal compared to the extra cost of replacements made necessary because of poor materials commonly used. Great care should be taken to so design the exhaust pipe and engine manifold that a positive leak-proof joint can be made between them; one which can be easily broken without damage to either.

PROTECTION OF METAL PARTS: The life of cab, body and other sheet metal is unnecessarily shortened due to the neglect of manufacturers in

failing to thoroughly prime metal before assembly. All metal surfaces which are to be concealed in assembly should be coated with a good coat of primer with rust inhibiting properties. Most light sheet metal corrodes from the inside out because the inside surfaces have not been properly primed. This is an unjustifiable waste.

To prime all sheet metal before assembly would require considerable planning and extra expense but the additional cost incurred would be offset many times over during the life of the vehicle.

It would be good economy to use sheets of heavier gauge than usual in the more critical places and there is little doubt that steel with rust resisting properties could be used profitably for many cab and body parts.

All pockets which are likely to fill with mud splashed from the road should be eliminated. Mud held in such pockets cause the metal to rust through quickly even though it has been thoroughly primed.

Grilles, instead of being made of hard-to-repair metal, could just as well be made of mild steel easy to straighten and weld. Hood latches and hinges should be of non-rusting material.

Brass rods should be used in all continuous type hinges.

Door handles should be made as heavy and durable as possible, preferably of bronze or stainless steel. Window regulators should be properly primed with rust resisting materials and then painted. The same thing applies to cab door window frames. Possibly stainless steel is justified for such parts.

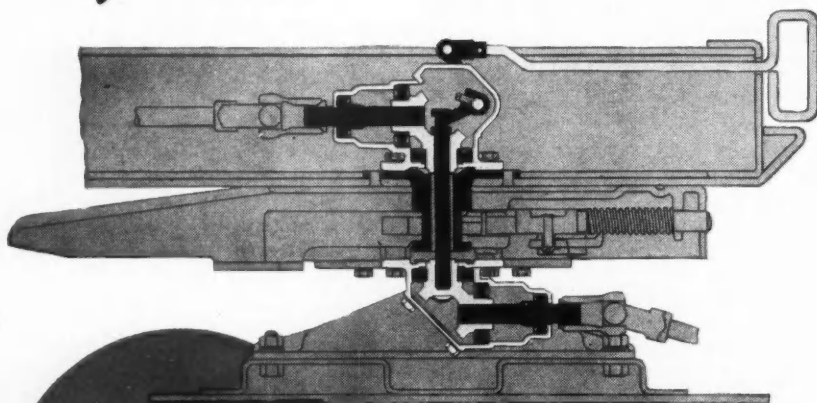
Rubber gaskets should be held in (TURN TO PAGE 168, PLEASE)



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POWER DRIVE

for HOISTS • WINCHES • LIFTS



THE
Accepted
STANDARD

Mounted on the AUSTIN universal type FIFTH WHEEL AUSTIN'S patented POWER DRIVE provides the most efficient means for transmission of power from truck power take-off to Hoist, Winch, Dump, or other power driven equipment mounted on Semi-Trailers.

For complete information on this new Auxiliary Power Fifth Wheel unit see your nearest Trailer Distributor.

AUSTIN TRAILER EQUIPMENT COMPANY

ENGINEERED TRUCK AND TRAILER PRODUCTS

MUSKEGON, MICHIGAN



"What class would a mother-in-law come under—large or small game?"

WGB

OIL CLARIFIERS

Cost less...because they do more, longer!



W. G. B. Oil Clarifiers are the strongest, simplest, easiest to install and service, of all oil-filters. They protect vital, expensive parts from wear, are serviced, cleaned, and refilled without tools. Many of the world's leading makes of cars, trucks, buses, tractors, marine engines, and stationary engines are equipped with W. G. B. Oil Clarifiers.

W. G. B. Replacement Cartridges are low in price, but high in efficiency. Every atom is essential to filtration... greater capacity gives longer life, utmost economy. • The CT Clarifier, which is the latest addition to our line, is a multiple purpose filter. It is equally efficient for lube oil or fuel oil; also ideal for cutting oils.

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For lower maintenance
...insist on
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THE ORIGINAL OIL
CLARIFIER

FIRE STRIKES *anywhere, anytime!*

GREYHOUND BUSES

carry their own

"FIRE DEPARTMENT"



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DRY CHEMICAL EXTINGUISHERS

There are few fire departments along the winding highway trails. That's why Greyhound Bus Lines protect passengers and property with speedy, reliable, fire-killing, ANSUL-DUGAS Dry Chemical Extinguishers.

Upon striking fire, ANSUL-DUGAS Dry Chemical instantly releases 1100 times its volume in flame-smothering gas that chokes off fire in seconds. You're always safer with an ANSUL-DUGAS Dry Chemical Extinguisher in constant readiness. This is one more of the many safeguards employed by the Greyhound Lines to make your travel more comfortable and more enjoyable.

924

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

BODY, ENGINE CHASSIS IMPROVEMENTS

(CONTINUED FROM PAGE 166)

place by metal boxes, not simply cemented to flat surfaces.

Although plastics such as "Plexiglass" and "Lucite" scratch easily, this material would probably prove to be superior to glass for cab door windows. The breakage of glass in cab doors is terrific and many hours of labor are expended in making replacements. Besides this, drivers suffer great discomfort in cold weather when they are required to drive trucks with broken windows which is often the case when repairs are delayed.

Substantial rests should be provided to hold hoods on conventional jobs in the open position when men are working on the engines.

ROAD CALL PROBLEM: Engine accessories are responsible for a substantial percentage of our road failures and, surely, something can and should be done to improve them. As a matter of interest I am submitting a complete analysis of the causes of several hundred road failures occurring in a large fleet of local delivery vehicles.

ANALYSIS OF ROAD FAILURES

4 1/2 Million Local Service Miles

Nature of Failure	Number of Calls	Per Cent of Total
Mechanical Failures:		
Electrical.....	712	39.2
Tires.....	254	14.0
Fuel System.....	237	13.0
Clutch.....	62	3.4
Brakes.....	51	2.8
Transmission.....	49	2.7
Cooling System.....	47	2.6
Engine.....	41	2.3
Springs.....	32	1.8
Body Hardware.....	28	1.6
Steering Gear.....	20	1.1
Accidents.....	19	1.1
Rear Axle.....	16	.9
Chain Repairs.....	15	.8
Miscellaneous: (Too few of one kind to classify).....	62	3.4
Total: Mechanical Failures..	1,645	90.7
Non-Mechanical Failures:		
Gasoline Exhausted.....	100	5.8
Street Truck Battery Down..	31	1.7
Engine Frozen.....	10	.5
Stuck in Mud.....	29	1.5
Total: Non-Mechanical Failures.....	170	9.3
Total Failures.....	1,815	100.0

Such an analysis makes it possible to pick out the types of failure which occur most frequently and, accordingly, are most worthy of an expenditure of time and money to improve both from the design angle and that of maintenance.

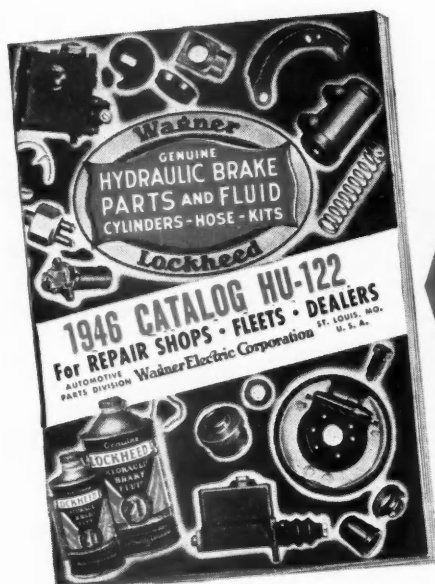
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(Please resume your reading on P. 63)

Save Time and Avoid Mistakes with Wagner's 1946 Catalogs!

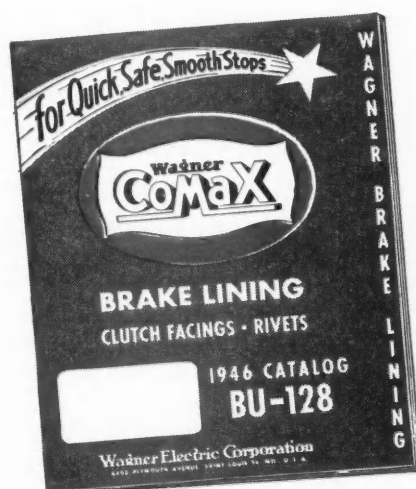
Every automotive repair shop needs these two Wagner catalogs—HU-122 on Wagner-Lockheed hydraulic brake parts and fluid, and BU-128 on Wagner CoMaX brake lining and clutch facings.

They are real helps, for they enable you to order the *correct parts by part number* from your jobber without delay, and at the same time give you necessary price information for making *quick and accurate cost estimates*.



Contents of Catalog HU-122

Cars and Trucks, by years and models—listing hose assemblies, master cylinders, wheel cylinders, and cylinder repair kits • List prices of hydraulic brake parts—numerically arranged • Repair Kits . . . lists of contents • Stop-lite Switches, by catalog number and car application • Brake Fluid • Cross-Section Drawings of various master cylinders and wheel cylinders, with all parts identified by correct name • Tools and Equipment available for servicing hydraulic brakes.



Contents of Catalog BU-128

Cars and light trucks by years and models,—heavy trucks by models by years, listing brake lining sets and blocks, and clutch facings • List Prices of clutch facings and brake lining—numerically arranged • Tables with list prices of rivets, slabs, shim-stock, etc. • Tractor Clutch Facing data • Brake Lining assortments and cabinets.

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FORMERS • INDUSTRIAL BRAKES • NoRel • TACHOGRAPH

Wagner Electric Corp.
6470 Plymouth Ave.
St. Louis 14, Mo.

- ☐ CATALOG HU-122
☐ CATALOG BU-128
☐ SERVICE LITERATURE

Please send me free copies of Wagner catalogs and service literature, as checkmarked above.

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CITY AND STATE _____

A46-2C

Filters and Filter Elements



for **A QUARTER BILLION
HORSEPOWER of ENGINES**

Over two million MICHIANA Oil Filters and Elements have been made during the last three years alone.

This is equivalent to over a quarter billion horsepower capacity of gasoline and diesel engines.

There are types and capacities for the engines you use—whether 50 horsepower or several thousand—for cars, trucks, buses, agricultural and construction machinery, streamliner, freight, and switcher locomotives, and all kinds of water craft.

The added experience gained in meeting the exacting requirements of Army and Navy, and enlarged manufacturing facilities assure you still better filters in quantities to meet your particular needs.

MICHIANA PRODUCTS CORPORATION
Michigan City, Indiana

**MICHIANA
OIL FILTERS**

For Ships, Tractors, Trucks, Buses,
Agricultural Machinery, Construc-
tion and Road Building Equipment,
Cars, Delivery Vehicles, and Sta-
tionary Engines—gas and diesel.

FROZEN FOOD HAULS

(CONTINUED FROM PAGE 49)

65 per cent of FFI membership has signified complete approval and complete willingness to go along with the plan. The remainder is expected to follow suit.

The plan as now conceived by the Frozen Food Institute consists of placing a sealed and self-contained recording device with the shipment at point of origin. At the conclusion of the run one of the two duplicate charts would be returned to the shippers, the other sent to the FFI for checking.

Approaching the subject more conservatively, but with equal conviction on the matter of zero or near zero temperatures, is the National Association of Frozen Food Packers whose membership comprises principal producers of the industry. With regard to recording thermometers this association reports current tests being made with refrigerated railroad car equipment. It has not yet tackled the truck problem, but their work with the railroad cars is a definite straw in the wind.

Zero Deg. F. Essential

WHY zero degree, the fleetman asks? Why not 10 or 15 or anything up to 32 just so that the product stays frozen? One very simple answer is that some frozen products, notably frozen fruits packed in sweetened syrups, actually melt at 15 deg. F. But the main point is a matter of bacterial action. Here is the way Dr. G. Hodges Bryant, chairman of the Board of the Frozen Food Institute, puts it:

"When a food product is quickly frozen to a sub-zero temperature it contains no active bacteria whatsoever. But at 5 deg. above zero F., the dormant bacteria start coming to life. That is why plus 4 deg. F. is considered the critical point. At 14 deg. F. the bacteria are fully alive and from that point on they multiply at a rate of 300 per cent for every 5-deg. rise.

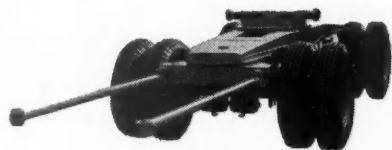
"These active bacteria have the same effect on frozen foods as they have on fresh foods, although their action is still retarded. Sooner or later, and often sooner, the products

(TURN TO PAGE 172, PLEASE)

HAUL BIGGER PAYLOADS FASTER...AT LESS COST

Look at these
money-making
advantages:

- ▶ Increased payloads up to 40%
- ▶ Cuts running time
- ▶ Requires less power to operate
- ▶ Simple in design and construction
- ▶ Negligible maintenance cost
- ▶ Snakes through traffic like a passenger car
- ▶ No tire scuffing on tightest turns or straight-away
- ▶ Smooth braking—no chatter or sway
- ▶ Stabilizes load—prevents shifting on rough roads

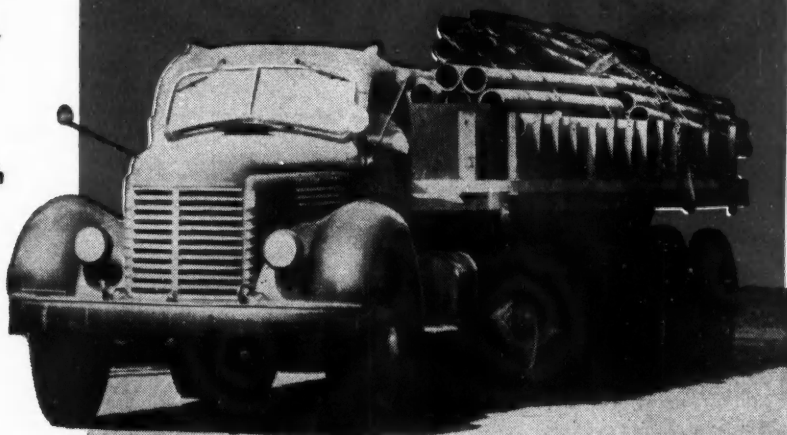


• Learn how you can have one of these new Undercarriages on your next trailer . . . secure for yourself all of their cost-saving, money-making advantages. Write today for Bulletin HC-3 to the Union Metal Mfg. Co., Canton 5, Ohio.

...with the New

HOOBLER

**SELF-STEERING
UNDERCARRIAGE**



Greatly increased tire mileage

UNION METAL

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

Builder of The Hoobler Undercarriage

FROZEN FOOD HAULS

(CONTINUED FROM PAGE 170)

lose taste qualities and reach the danger point from the health aspect.

"Bacterial action during refreezing also is important. Suppose the product reaches 20 deg. F., either in a truck or through mishandling somewhere along the line, bacteria are, as we have seen, alive and active. Now as the temperature is lowered, bacteria, like people, seek the warmest spot. This may be the center of the

package, if the cold is uniform, or at a far corner if the cold is applied at one side. Where the bacteria congregate, and finally become dormant again, is a real danger spot from the health standpoint; may even lead to serious food poisoning. In addition, the sealed-in tastiness of the original product and all the cost of the quick-freeze process have been lost.

"That in a nutshell explains why refreezing can be dangerous and also explains the reason for 'quick freezing' all commercially frozen prod-

ucts. By lowering the temperature of the product fast to at least 5 deg. below zero F. (and this requires refrigerants in the neighborhood of minus 40 deg. F.) the bacteria have no chance to congregate in any one spot, and both taste and health are sealed in."

Recorders for Long Hauls

GETTING back to how these factors affect the trucking industry, we must, of course, recognize the great differences imposed by variation in length of time the frozen products are in transit. For the short haul, satisfactory temperature is relatively easy to attain, provided the product is delivered at sufficiently low temperature. Plug-in type, electrically-driven compressors with hold-over plates, dry-ice or brine solutions should do a satisfactory job. A point to remember is that the temperature of the product itself (usually below zero when it leaves the packer) may be used over short periods as an actual refrigerant for the truck body if it is thoroughly insulated. For this reason the advisability of using recording thermometers in the short-haul field is still somewhat doubtful.

In long-haul operations self-contained refrigerating units are virtually required. They must be capable of holding the temperature down regardless of the length of the haul or of delays enroute. Here the recording thermometer comes into its own as a positive indication over a relatively long period of time of exactly what temperature was maintained at every moment of the trip.

No discussion of the use of recording thermometers in connection with truck shipments, however, would be complete without a word of caution. All too often in the past, truckers have taken delivery of frozen products whose temperature at time of acceptance was too high. No truck refrigerating mechanism, no matter how efficient, may be expected to pull down the temperature of a large mass of frozen products. Hence it is imperative that, if and when the truckers are called upon to deliver proof of their load temperature in transit, they also demand positive proof of the temperature at which the product is actually placed in the vehicle.

(TURN TO PAGE 174, PLEASE)



CHECK YOUR BRAKE LINING REQUIREMENTS WITH GRIZZLY

REG. U. S. PAT. OFF.

For over thirty years leading fleet owners and service managers have checked their brake lining requirements against Grizzly resources—and here are just a few of these requirements that Grizzly has successfully fulfilled.

✓ *Substantial Manufacturing Experience.* Grizzly has manufactured fine brake lining for both automotive and industrial fields for over three decades. ✓ *Adequate Production.* Grizzly maintains two large capacity plants employing the most modern mass production techniques. ✓ *Dependability.* Grizzly is one of the largest producers of molded brake lining and has long been recognized

as a dependable supply source for brake lining of uniformly high quality. ✓ *Ability To Cope With Specific Brake Lining Problems.* Large but flexible; experienced but alert—those factors plus Grizzly's constant research and study of new brake lining developments enable Grizzly to solve brake lining problems of widely divergent natures.

✓ *High Quality Product.* Grizzly brake lining is engineered to provide all around superior braking performance under all conditions of service. It is an exclusive asbestos-friction compound, molded on a strong wire grid back, and it maintains a constant high coefficient of friction throughout longer life.

There's a Grizzly Distributor near you—call him today! Grizzly Manufacturing Company, Paulding, Ohio. Plants at Paulding and Bell, California.

"Bear in Mind"... ask for

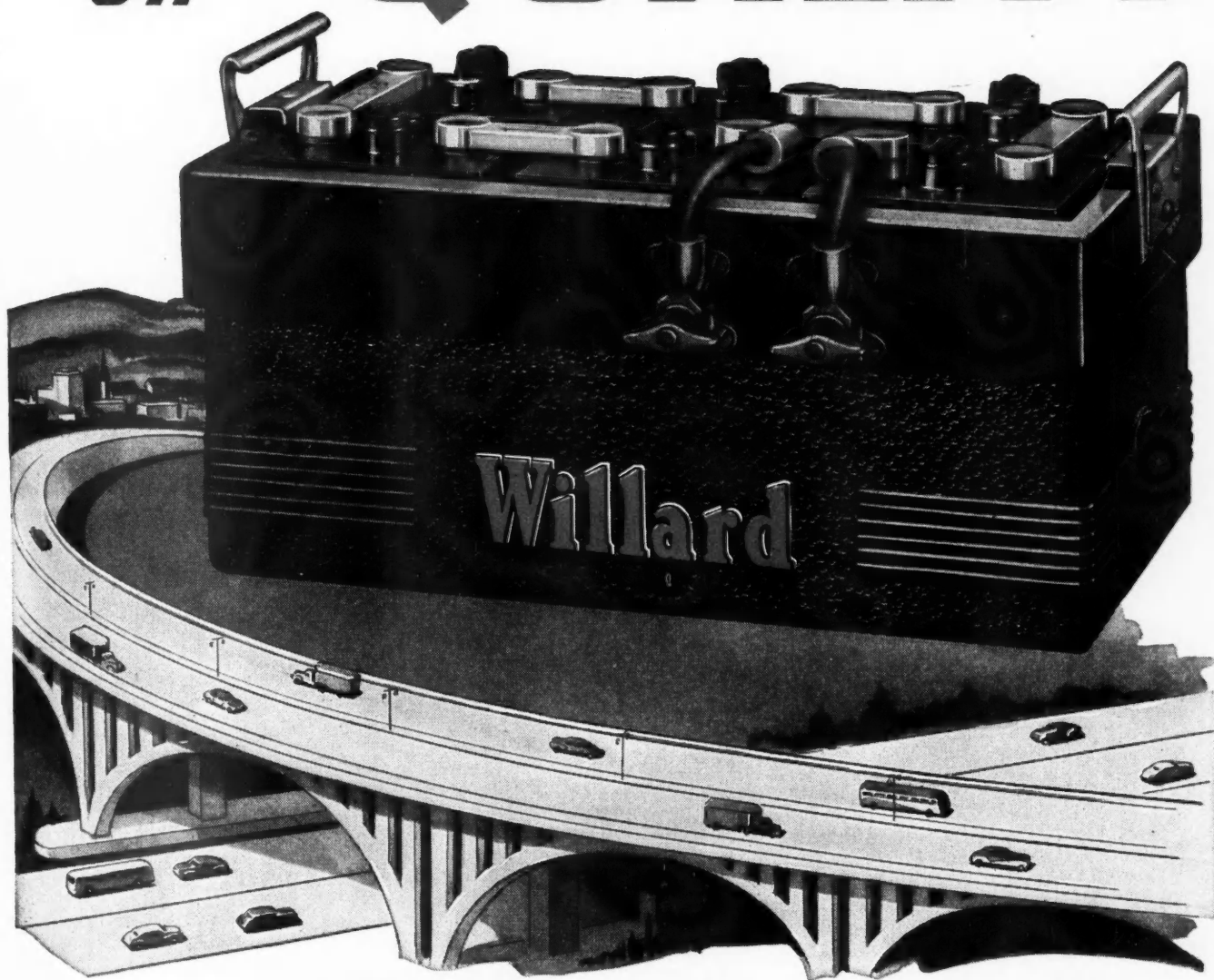


GRIZZLY

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BRAKE LINING

PERFORMANCE *based on* QUALITY



WILLARD BATTERIES—Automobile
Truck and Bus • Radio • Motorcycle
Tractor • Aircraft • Marine • Diesel
Stationary—Sold and serviced
by Willard Dealers everywhere.

Willard

**"SAFETY-FILL"
COMMERCIAL AND
DIESEL BATTERIES**

Dependability • Performance • Long Life

WILLARD STORAGE BATTERY CO. • CLEVELAND • LOS ANGELES • DALLAS • TORONTO

FROZEN FOOD HAULS

(CONTINUED FROM PAGE 172)

Proper Insulation Essential

IN ALL methods of refrigeration, proper insulation is a *must* consideration. Most refrigeration experts, no matter how directly concerned with the products they manufacture, will advise that there is no use talking about refrigeration until the problems of insulation have been resolved.

Also of primary importance is the matter of proper stripping, a term generally applied to the manner in which perishable products are so loaded that proper air space and air circulation are provided between the product and the surfaces of the vehicle including top, bottom and sides.

Necessary Equipment Available

Fortunately, there is on the market suitable refrigerating and insulating equipment, which will hold the zero deg. F. temperature. Record-

ing thermometers, though not perhaps in the exact styles desired, can also be obtained. Just how soon the equipment will be available generally and in what quantity is anybody's guess.

In the light of the foregoing, it would appear to be sound business for every fleetman engaged in the transport of foods to consider the potential and probable requirements of his shippers. When buying new equipment or renovating old equipment, the ability of the complete unit to hold zero deg. F. for whatever length of time the shipments will take, is a vital factor. The requirement for temperatures this low is not yet universal, but the arguments for it are biologically sound and sooner or later the requirements will follow.

Likewise, there is as yet no standard requirement for the use of recording thermometers. But the arguments for them are economically sound, particularly in the long-haul field. At this writing it appears certain that at least some shipping contracts will soon contain a provision requiring proof of in-transit temperature from time of departure to time of arrival and the only practical means of supplying this proof is to deliver with each shipment a recorded chart, such as illustrated at the beginning of this article, showing the exact temperatures encountered en route.

END

(Please resume your reading on P. 50)

EDITORIALS

(CONTINUED FROM PAGE 35)

As an effort to raise size and weight standards in the so-called backward states, the AASHO proposal merited and was accorded the approval of all highway transportation interests.

* * *

Seasonal Note

WHEN the heat is unbearable and makes you long for cool ocean breezes or high altitudes, give a thought to the tires that are rolling over sun-baked highways. Hot weather is as tough on tires as it is on human beings. Heat softens rubber and reduces its resistance to abrasion and to cuts. Watching inflation, reducing driving speeds and preventing overloads will pay off in tire dollars.

END

(Please resume your reading on P. 36)

FAST CHARGING • ACCURATE 30 SECOND TEST

MARQUETTE

REGISTERED U.S. PAT. OFFICE

Hi-Rate CHARGER

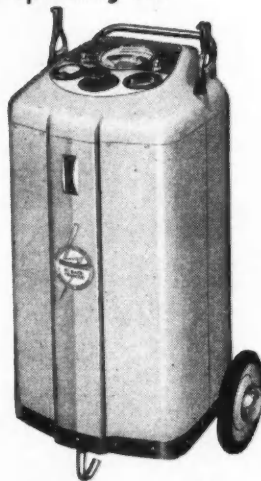
MODEL 170

• The Marquette Hi-Rate Charger features an Accurate, HIGH SPEED Testing System. Quick, 30 second test shows exact condition of battery and indicates accurate charging time. If battery is worn-out or defective, the meter proves that a new battery is needed. The Marquette Hi-Rate keeps batteries in top operating condition.

NOTE THESE OUTSTANDING MARQUETTE HI-RATE FEATURES

- FAST CHARGING
- ACCURATE 30 SECOND TEST
- TESTS BEFORE CHARGE
- COPPER OXIDE RECTIFIER (FOR LONG, DEPENDABLE SERVICE)
- BATTERY CONDITION INDICATOR
- AUTOMATIC TIME SWITCH
- HIGH RATE DISCHARGE (FOR DESULPHATING BATTERIES)
- INDIVIDUAL CELL CHECK
- OVERLOAD RELAY
- 100 AMPERE CAPACITY

MARQUETTE AUTOMOTIVE EQUIPMENT
SOLD EXCLUSIVELY THRU THE
NATION'S LEADING DISTRIBUTORS



MARQUETTE

REGISTERED U.S. PAT. OFFICE

Automotive EQUIPMENT

BATTERY CHARGERS • JACKS
A.C. ARC WELDERS • ELECTRODES
GAS WELDING AND CUTTING EQUIPMENT
ACETYLENE GENERATORS • ACCESSORIES

MARQUETTE MFG. CO. INC.
MINNEAPOLIS 14, MINN.

M E A N S E V E R Y T H I N G

MANY GOOD THINGS have come out of the war. The wonderful advancements by the Rubber Industry are outstanding examples. Faced with drastic curtailment of crude rubber, the industry's chemists threw their experience and knowledge into the task of creation—and practical synthetic rubber became a fact.

Never again need America fear foreign pressure on rubber prices. The alchemy of nature is now ours. Prominent in this great research for a manufactured rubber was the Mansfield Tire & Rubber Co. Such effort cost time and money and energy. But, the experience gained by Mansfield already is reflected in tires unsurpassed in quality and performance.

Whether it be a Mansfield, Century, Richland or United brand, as made by Mansfield, the jobbers of America know that no competitive selling can pledge and deliver more in the way of long life, long wear or repeat buying on the part of satisfied tire users. Truly, the rubber industry is grateful to Mansfield for selfless contribution in a war crisis.

Mansfield's jobbers are more than distributors of merchandise. They, also, are arbiters of quality...value...price. By independent choice and through deserved confidence of jobbers, dealers and users, tires made by Mansfield have earned their enviable reputation for service and dependability.

THE MANSFIELD TIRE & RUBBER CO. • MANSFIELD, OHIO

Following Well Known Tires



JULY, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

177

FROZEN FOOD HAULS

(CONTINUED FROM PAGE 172)

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END

(Please resume your reading on P. 36)

FAST CHARGING • ACCURATE 30 SECOND TEST

MARQUETTE
REGISTERED U.S. PAT. OFFICE

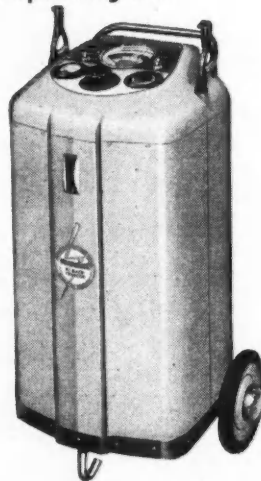
Hi-Rate
CHARGER
MODEL 170

• The Marquette Hi-Rate Charger features an Accurate, HIGH SPEED Testing System. Quick, 30 second test shows *exact* condition of battery and indicates accurate charging time. If battery is worn-out or defective, the meter proves that a new battery is needed. The Marquette Hi-Rate keeps batteries in top operating condition.

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- FAST CHARGING
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THE MANSFIELD TIRE & RUBBER CO. • MANSFIELD, OHIO

Following Well Known Tires

RICHLAND



UNITED



WHOLESALE EXCLUSIVELY

JULY, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

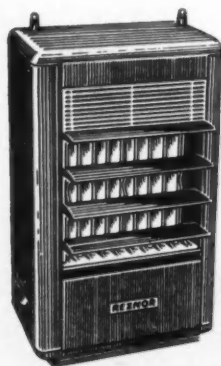
"Yes. Heat where you want it —"



REZNOR

Gas unit heaters

1. Attractive installation.
2. Easily installed.
3. Quickly installed.
4. Low cost installation.
5. Installed where you want it.
6. Installed from the ceiling.



★
Propeller fan and blower types. Nine sizes of each.

REZNOR
MANUFACTURING CO.
Since 1888
MERCER, . . PENNA.

NO BOILERS • NO STEAM LINES
NO FUEL STORAGE • NO FIRE TENDING

CUSTOM BODY SERIES

(CONTINUED FROM PAGE 55)

tion of smooth, sweeping lines, multiple color tones, decorative polished panels, streamlined painting and the use of an individual insignia plaque.

Construction Features

THE construction of the basic structure or framing is flexible to the extent that either steel, mild or high tensile, or hard wood could be used. Outside paneling would fall within the industry practices of steel, aluminum, steel or aluminum over plywood or plymetal. For the polished decorative upper panel, either aluminum or stainless steel are suggested.

Any of a number of accepted inside linings could be used throughout, or in varied combinations, such as wooden or Hi-tensile steel slats, plywood, tongue-and-groove wood to the belt line with slats above or plywood to the belt line with slats above.

Either two shades of green or blue are recommended as color schemes to produce as substantial and dignified unit as possible; such a unit being best suited to vocation suggested. The lettering would be the same as the lower panel which is the darker shade of the color selected.

Special Features

THE following are some of the special details, some of which are illustrated on page 55. Convenient steps for front entrance into the cab, large full vision windshield, double rear doors over a diamondette lined tailboard, flush-lock type door handles for the protection of expensive items, flush inside tie-down rings, blanket shelves, streamlined marker lights, recessed license plate brackets and signal lamps.

END

(Please resume your reading on P. 56)

MORE THAN STRAINS

Actually Cleanses Oil!

DELUXE

MORE THAN FILTERS

Oil Filters

DE LUXE PRODUCTS CORP., LA PORTE, IND.



Speed up

REPAIR JOBS

Use the OTC PULLING SYSTEM to remove and replace bearings, races, pinions, gears, sprockets, sleeves, collars, snap rings, hubs, wheels, shafts and other close-fitting parts and assemblies—EASILY, QUICKLY SAFELY! The only COMPLETE Puller Line—solves many tough pulling problems not handled by any other tools. APPROVED by Hyatt, M-R-C, New Departure, SKF and Timken. OTC means DEPENDABILITY.

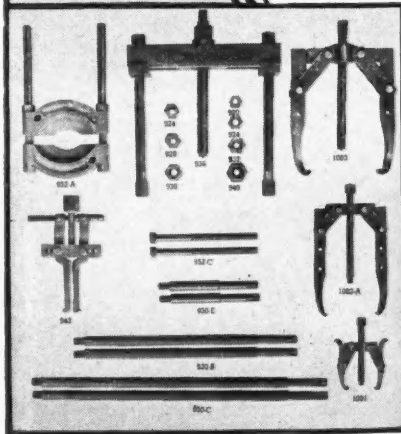
OTC No. PE-12 SET (shown below) is a service-tested selection of OTC PULLERS, Attachments, Threaded Adaptors and Extension Legs to handle widest possible range of work on trucks, busses, tractors, and power equipment. Optional Service Board is 3' x 4', sturdy, convenient, attractive.

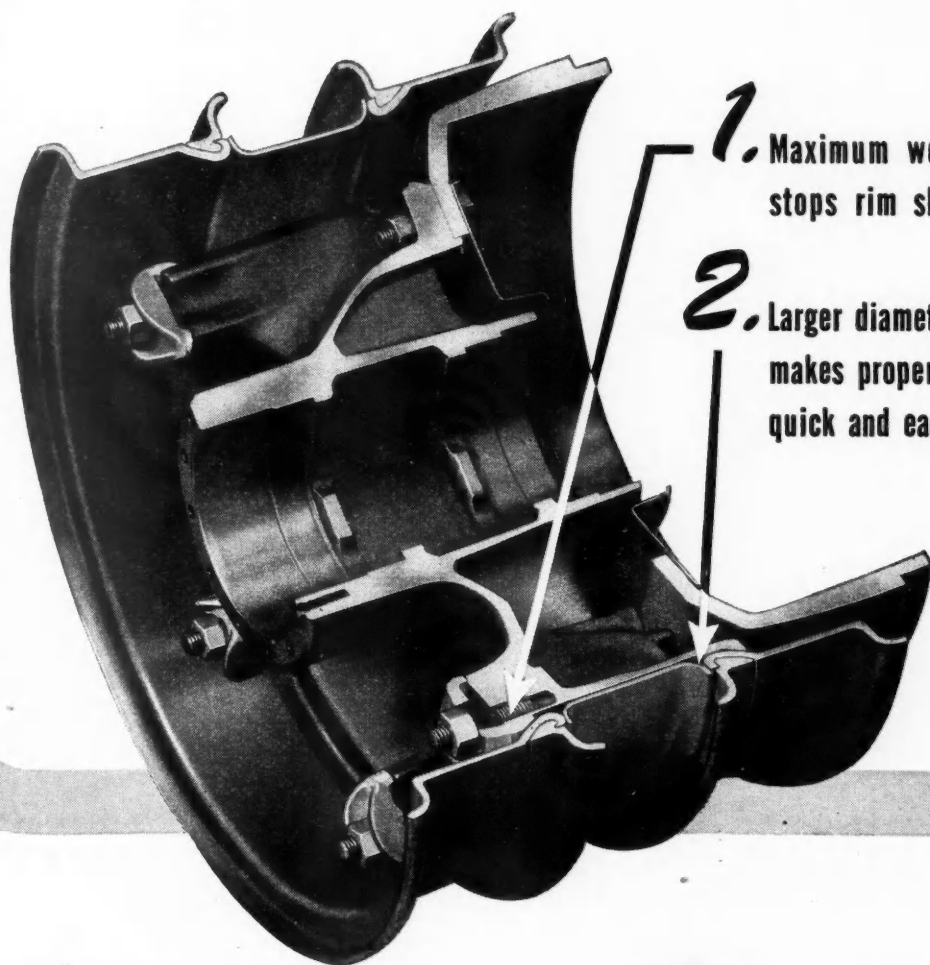
Ask Your Jobber or write for details

OWATONNA TOOL CO.

335 Cedar St.
OWATONNA, MINN.

Removing differential bearings on KR-11 International Truck.





1. Maximum wedging action stops rim slippage.

2. Larger diameter here makes proper alignment quick and easy.

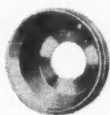
1. When you tighten the rim clamps on a Dayton Wheel, you get maximum pressure where it's needed: at the wedge portion of the clamp. This reduces stress on the clamp, improves clamp leverage, insures better chucking action against the rims at lower stud tension. Greater safety and longer wear result. This is just one of many design features that have kept Daytons out front in the industry for 32 years.

2. It's easy to install an inner rim on a Dayton Wheel—and get it positively in correct alignment—every time. The rim slides on the spoke ends to the point where a larger diameter exists. This steers the rim into its "home" position concentric with the wheel, assures a snug fit of the rim gutter against the taper, eliminates rim sag. In every detail, Dayton Wheels are right — for trucks, buses, trailers.

Dayton Steel products are serviced by distributor members of the National Wheel and Rim Association.

THE DAYTON STEEL FOUNDRY CO., DAYTON 1, OHIO

Dayton SPOKE TYPE CAST STEEL Wheels



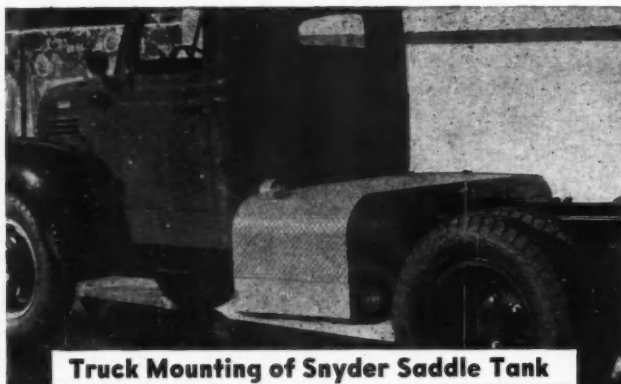
Dayton Brake Drums
Drums assembled to the wheels at the factory give more perfect concentricity.



Dayton 5th Wheels
Standard equipment on many trailers. Quick coupling. Positive operation.



Dayton Landing Gears
Made in both hydraulic and mechanical types.



Truck Mounting of Snyder Saddle Tank

SAFETY SNYDER TANKS

Most Popular Safety Equipment In The Trucking Industry

Some Reasons Why?

1. 100% lapwelded construction.
2. Uniform strength throughout.
3. Equipped with Flame Guard Safety Valve. (Trade Mark No. 409422.)
4. New Fusible Filler Caps.
5. Slip Proof Deck Plate.
6. Designed to fold with a crash.
7. Approved by the Underwriters Laboratories, Inc.

Patent Numbers 2181772 - 2273737 - 2389168. Others pending. Also foreign patents.

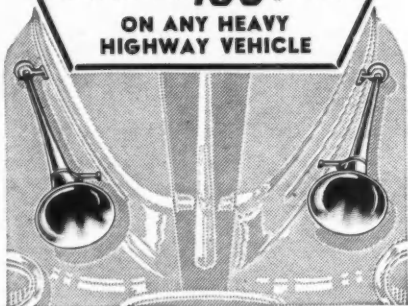
When You Buy a Tank Buy "Snyder." For Catalog and Address of Your Nearest Distributor, Write:

SNYDER MANUFACTURING CO.

P. O. Box 14, Buffalo 5, N. Y.
SNYDER TANK CORPORATION P. O. Box 2390, Birmingham, Ala.

A BUELL AIR HORN

is worth \$100 yearly
ON ANY HEAVY
HIGHWAY VEHICLE



- BUELL High Pressure Air Horns Speed Up Schedules and Cut Down Costs!
- They get instant response . . . reduce maintenance costs by decreasing unnecessary stops, starts and slow downs.
- They keep the Highways open so that a steady cruising speed is maintained . . . 12% better road time is the result!

TRUCK OPERATORS: BUELL High Pressure Air Horns are available NOW. Write us for information and catalog sheet.

BUELL MANUFACTURING CO.
2988 Cottage Grove Ave., Chicago 16

CONOCO'S MAINTENANCE

(CONTINUED FROM PAGE 45)

lieve any of the regular garage and shop employes from cleanup responsibility.

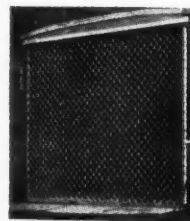
Cleanup Part of Job

FRED DAVIS, Ponca City garage and shop superintendent, said they work on the theory that every man is a cleanup man and hold each man responsible for any dirt left from his job. They are told that the job is never completed until the mess is cleaned up.

Usual shop routine calls for completion of a job assigned to a mechanic. When he has completed his assignment, he is required to clean and replace all the tools, dispose of all dirty rags and litter in fireproof closed-top refuse cans, sweep his section of the floor, clean off his section of the bench with solvent, and to

(TURN TO PAGE 222, PLEASE)

ZEHR COLLAPSIBLE TRUCK BACKS



Safe . . . easy and simple to handle. Zehr Truck Backs are all-welded steel designed for great strength and long continuous service. They are theft-proof, rust-proof and flexible.

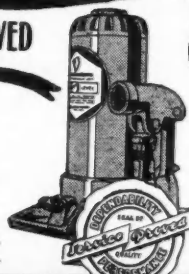
Write for details and prices.

ZEHR PRODUCTS COMPANY
2130 East Mazzard Street, Philadelphia 25, Pa.

SERVICE-PROVED

YEARS of toughest service prove Blackhawk Hydraulics superior in safety, rugged dependability and utility. "Service-Proved" Seal found only on Blackhawks. Models up to 50 tons capacity.

BLACKHAWK MFG. CO.
Dept. J1176, Milwaukee, Wis.



BLACKHAWK

Available Trucks

1½ TO 20 TONS
TRUCKS • TRACTORS
TRAILERS • BUSES
(SINCE 1910)
TELEPHONE—BRUNSWICK 1100
AVAILABLE TRUCK CO.
2501 ELSTON AVE.—CHICAGO 47, ILL.

America's Leading HEAVY-DUTY
TRUCK Manufacturers Standardize

on **LIPE**
CLUTCHES



- ★ for more miles between tear-downs!
- ★ for less wear and tear on the truck!
- ★ for easier maintenance and replacement!



LIPE-ROLLWAY CORP.
SYRACUSE, N. Y.

Specify
Velvetouch
BIMETALLIC FRICTION MATERIAL
for

CLUTCHES AND BRAKES
THE S. K. WELLMAN CO.
CLEVELAND, OHIO

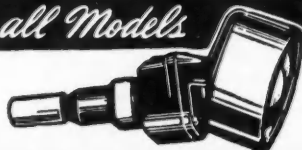
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"KOLORFILM" DECALCOMANIA

FIRST IN { APPEARANCE
ECONOMY
DURABILITY

Still Made With DuPont "DULUX"
Write Today for details

THE PERMALUX COMPANY
500 Rathbone Ave. • Aurora, Ill.

*Wohlert has Oil Pumps
for FORD • CHEVROLET
all Models*



Wohlert LANSING 5
CORPORATION MICHIGAN

Save Pencil Work

Order and Sell
CARTER
PARTS

by the Package!

Carter Carburetor Corporation
2420 56 North Spring Ave., St. Louis, Mo.



NO RECLAIMED RUBBER IN McCREARY TIRES!

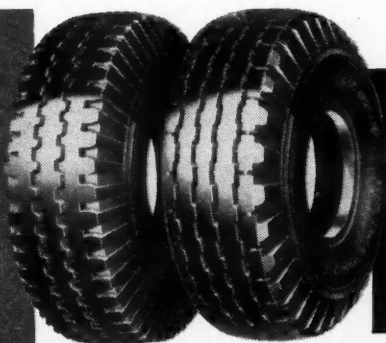
When you buy McCreary's you are not getting "second hand" tires. Not one ounce of *reclaimed* rubber is used in McCreary's. And McCreary is the only tire builder who makes this statement!

Further, the natural crude rubber content of McCreary Truck Tires has recently been increased by over 100%—more than double what it was before.

McCreary Tires are built to deliver *more* original miles...take *more* recaps per casing...and give many *more* miles on every recap. Get McCreary's... and you get the best!



HERE'S
WHERE YOU
WILL FIND
McCREARY
DEALERS



McCREARY
"Built for Longer Service"
TIRES

MANUFACTURERS OF QUALITY TIRES FOR OVER 30 YEARS

McCREARY TIRE AND RUBBER CO. • INDIANA, PA.


De Vilbiss
 Spray-Painting Equipment — Spray Booths — Canopy Exhaust Systems — Exhaust Fans — Air Compressors — Hose and Hose Connections — Oil Guns
 Distributors or factory sales and service representatives everywhere
THE DEVILBISS COMPANY
 Toledo 1, Ohio

*For Precision Accuracy
and Speedier Production*
 USE
**J. P. ADJUSTABLE
HONE**
 Write to
WEBSTER PRODUCTS COMPANY
 J. P. HONE DIV.
 1100 West 9th St., Cleveland 13, Ohio

THE COMPLETE LINE
 that
 Completely Satisfies
 Since 1906
 The
Fitzgerald Mfg. Co.
 Torrington, Connecticut


Fitzgerald
GASKETS

Timken Bearings are the first choice of engineers and fleet operators everywhere because of their unusual efficiency and outstanding performance. Be sure the trade-mark "TIMKEN" is on every bearing you buy!

THE TIMKEN ROLLER BEARING COMPANY
 CANTON 6, OHIO

**EVANS-ENGINEERED
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Now Ready for Delivery
 EVANS heaters, with oversize core and superior defroster, are designed expressly for truck-cab use. See your local distributor or write direct to:
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EVANS PRODUCTS CO.
 DETROIT 27, MICHIGAN

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GARAGE TOOLS**


 GEAR PULLER
 2 and 3 FINGER TYPE
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 LIGHT BULB PULLER
 RING COMPRESSOR
 CREEPER CASTERS
 GARAGE TOOLS
 * WRITE FOR CATALOG *
 NO. 10 TIMING GEAR PULLER
Cal-Van
 MACHINE PRODUCTS INC.
 JACKSON, MICHIGAN, U.S.A.

CONOCO'S MAINTENANCE

(CONTINUED FROM PAGE 220)

clean the vise with solvent and air if he has been using it. When these chores have been completed, he is ready for another assignment.

For floor, shop, greaserack and washrack, eight men are used. The greaseman cleans his greaserack, his greasing equipment and the floor after each grease job—not at the end of the day.

The washman's cleaning job is a little easier but he is required to wash down his floor and see that his drain is open and clean after each car wash. Splatters of dirt washed from cars is not allowed to make a rosette around the wash rack. The dirt is washed down and the floor mopped after each wash job.

Besides keeping the floor and walls tidy, every effort is made to keep the dirt from getting on the floor in the first place. Drained oil from a car goes into a clean receptacle without splashing.

The garage and shop services and repairs about 150 units of rolling stock. The repair shop, which occupies one end of the storage garage, operates 24 hr. daily on a round-the-clock schedule. The first two shifts of mechanics are required to clean up each individual mess after each job. The last shift, the lobster or (TURN TO PAGE 224, PLEASE)

*The right braking material
for any commercial vehicle*
**CUSTOM-BUILT SETS
CBB SETS
THERMO-BLOCKS**
Thermoid
 THERMOID COMPANY - TRENTON, N. J.

Snap-on Tools
 THE CHOICE OF BETTER MECHANICS


SNAP-ON TOOLS CORPORATION
 8026-G 28th AVE. KENOSHA, WIS.

**THE
REPAIRMAN'S
FRIEND!**


**PURITAN
GASKA SEAL**

NEED HOSE CLAMPS?

Write today for FREE sample of the new Central 360° Wire Hose Clamp . . . and Bulletin No. 71.

CENTRAL EQUIPMENT CO.
 902 S. Wabash Ave., Chicago 5, Ill.

The big news in trailers is the new trade-approved

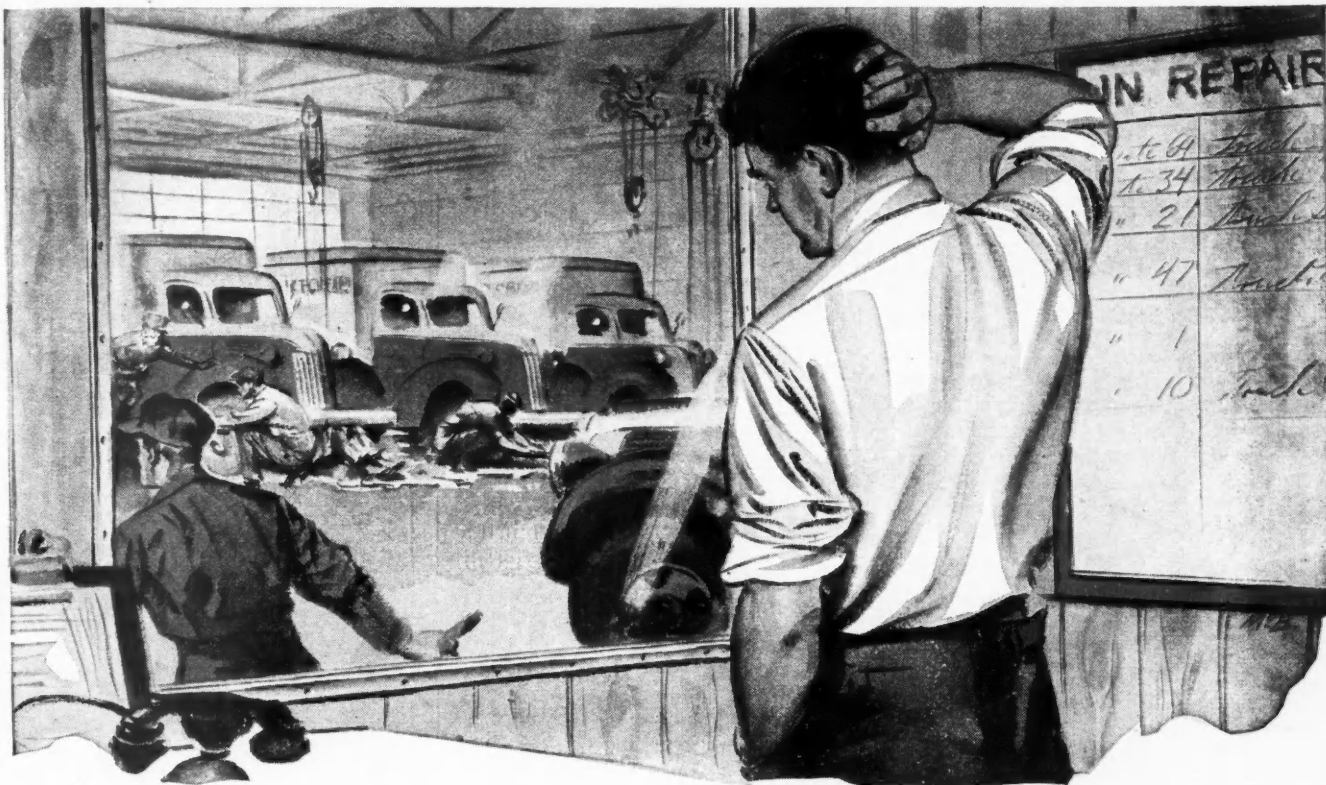
SUPERCARGO

new engineering . . . new features . . . new standards of performance. Before you buy another truck trailer, see SUPERCARGO.

AMERICAN BANTAM CAR CO.
 BUTLER, PA.

**YOU MAKE
MORE
MONEY
on
BLUE CROWN
HUSKY**


 AND YOU
SELL THE
BEST
 AMERICA'S
FINEST SPARK PLUGS



SAVE SHOP TIME; GAIN ROAD TIME

By Cutting Truck Brake Maintenance

You know the cost of lost running time—every fleet superintendent does. Trucks in the repair shop with defective power brakes often cost more repair dollars than a HYCON replacement costs . . . to say nothing of the loss in service and mileage revenues.

Vacuum brakes are eliminated by HYCON *Compound* Cylinders; they're *all-hydraulic*. No vacuum or air-actuated parts *can* get out of order, because there are none. The complete operation of replacing original equipment master cylinders with HYCON can be done in an hour. Think of the saving!

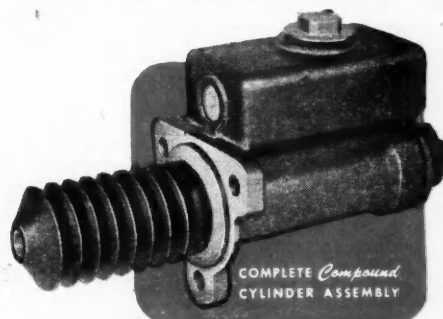
More Efficient Braking—Low Cost

HYCON Brakes deliver braking pressures in correct proportion to pedal pressures. The driver has *positive control* at all times—whether motor is idling or stalled—to meet every braking requirement. Reduces tire-scuffing, skidding and brake lag; equally efficient under load or no-load conditions; can't freeze. *Controlled* braking cuts *over-braking*.

Put HYCON to the Test

Order a trial unit from your local power brake distributor, or write direct to The New York Air Brake Company, 420 Lexington Avenue, New York 17, N. Y. Units available now to replace 1¼" and 1½" Di. original equipment master cylinders. Prove their savings and efficiency in your present fleet. Specify HYCON on your new trucks from now on.

CONTROLLED BRAKING



COMPLETELY HYDRAULIC

HYCON

Compound CYLINDER

Eliminates brake lag, improves safety factor, simple and quick to install, cuts tire wear and fuel consumption, reduces maintenance.

Look for this Registered Trade Mark

THE NEW YORK AIR BRAKE COMPANY

420 Lexington Avenue, New York 17, New York



OVERSIZE AND STANDARD REAR WHEEL STUDS

for all Trucks
ORDER FROM YOUR JOBBER



CHAMP-ITEMS, Inc.
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St. Louis 14, Mo.



SEND
FOR
CATALOG

ARMSTRONG

Specialists in Quality
Tires Since 1912

TIRES

Is it *Air* YOU WANT?



—then write for
**FREE
COMPRESSOR
BOOKLET**
on
"More Profitable Service"
...also ask for **FREE** Curtis
Maintenance Check Chart.

CURTIS PNEUMATIC MACHINERY DIVISION
Curtis Manufacturing Company
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FRINK SNO-PLOWS

Both "V" TYPE and
ONE WAY BLADE TYPE

hand or power hydraulic control

FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

Write for catalog 38AC and 38BC with discount to truck dealers.
CARL H. FRINK, Mfr., CLAYTON, 1000 1st, N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.



Check the wire on every job

Wire Joe

AUTOMOTIVE CABLE

manufactured by
THE CRESCENT COMPANY, Inc.
Pawtucket, Rhode Island

MOHAWK TIRES

and Recapping Materials are both GOOD

The
Mohawk Rubber Co., Akron 5, Ohio

CONOCO'S MAINTENANCE

(CONTINUED FROM PAGE 222)

graveyard shift, works it differently. They all work out their assignments without cleaning up and then all of them clean up the shop the last hour of their shift.

Junk Piles Not Permitted

THIS is one shop in which there is no junk pile. Each worthless part is disposed of immediately. The rule is if it is not worth putting back on the vehicle it is not worth saving.

A positive rule is: No used parts, spare parts or junk on the floor. If it is a part it belong in the parts room. If it is worthless, it belongs in the junk box. The only other category is to put it on a vehicle. The floor is for walking.

Personal Cleanliness Stressed

MECHANICS are requested to keep a presentable appearance with reasonably clean coveralls but consideration is given to the fact that some jobs are dirtier than others. The nature of the work has a definite bearing on the clothes.

Lockers, locker rooms and appurtenances are inspected regularly. All steel lockers have a peaked roof, which makes it impossible to lay anything on top. There is no space (TURN TO PAGE 226, PLEASE)

DETREX CORPORATION

Vapor Degreasing Equipment

Solvents • Alkalis • Emulsions

Metal Parts Washers



DETROIT, MICHIGAN

TRUCK

Order Monday—Get It Friday!
Rubber Tired

NOW! "Hand-dee Andy" all purpose tube steel 600 lb. cap. Full size, first quality. Not a wartime makeshift. Light wt. very easy to handle. Lt. 44". 14" wide at nose. Curved cross pieces. Nationally known, thousands in use. Fully guaranteed. Send back express collect, if not best truck buy you've seen in years. Clip this.

Lots 3, \$13.95

The **HANDEES CO., Dept. 171A** **Bloomington, Ill.**

Dart Trucks

HEAVY DUTY FOR
OFF THE HIGHWAY SERVICE

—Specially Designed for—
Coal Mining—Iron Ore Mining—Copper Mining—Pit and Quarry—Logging—Oil Fields—Etc.
It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.

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KANSAS CITY, MO.

UNITS
AVAILABLE

GRICO 2-AXLE DRIVE

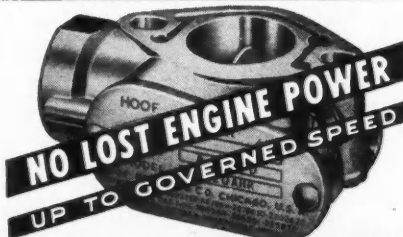
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AUTOPULSE ELECTRIC FUEL PUMP

- Uninterrupted Schedules
- Instant Starting
- Greater Economy
- No Vapor Lock
- Added Protection



AUTOPULSE CORP., DETROIT



HOOF FULL POWER GOVERNORS

SEND FOR FREE BOOKLET
HOOF PRODUCTS COMPANY
6343 SO. LARAMIE AVENUE, CHICAGO 38, ILL.

**10 or 2,000 units in a fleet...
long haul or short haul...
the results are the same...**



V·E·P OIL

MAKES ENGINES LAST UP TO 50% LONGER

Proved so completely in so many operations . . . in so many millions of miles of fleet travel . . . that Ohio Oil can say with authority, "V.E.P. OIL makes engines last up to 50% longer than they would with ordinary oil . . . go up to 50% farther between overhauls"

THERE'S no guesswork about what V.E.P. Oil will do in your engines. For V.E.P., the pioneer, heavy-duty additive oil, has been proved in enough different engines, under varied enough conditions, under enough millions of miles of travel to offer completely predictable results. That's why, changing to V.E.P. will give you all these advantages.

You'll have cleaner engines because V.E.P. cleans engines and keeps them clean, dissolves the binder that

holds sludge together, reduces carbon and varnish to a minimum. You'll have more protection against heat, shock loads and pressures because V.E.P. has more than twice the film strength of ordinary oil.

You won't have to worry about bearing corrosion because V.E.P. provides positive protection against harmful acids caused by products of combustion. And free-flowing, non-foaming V.E.P. also has a "magnetic-like" action which keeps a protective film on vital parts when engines are idle, guarding against "Start-Up" damage.

With all these *completely proved* engine-saving, money-saving, maintenance-saving advantages available to you in V.E.P. oil right now, why delay? Order from your local Marathon dealer or write, wire or phone, ask an Ohio Oil Company Lubrication Engineer to call.

The Ohio Oil Company produces all types of automotive greases and lubricants for every fleet requirement of trucks, tractors and trailers

THE OHIO OIL COMPANY

GENERAL OFFICES: FINDLAY, OHIO
District Offices: Robinson, Ill., Indianapolis, Ind., Louisville, Ky.

P R O D U C E R S O F P E T R O L E U M S I N C E 1 8 8 7



LOADABILITY — ROADABILITY

has long been one of the features of TUTHILL Leaf Springs. This fact reflects TUTHILL "Loadability"—strength, endurance, under varying load conditions. Resilience, i.e., springiness without bounciness—toughness—ruggedness—all combine to make TUTHILL the Quality Spring.

We make both standard and special leaf springs. What are your requirements?



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AVIATION & AUTOMOTIVE
ELECTRICAL PRODUCTS

FUEL INJECTION EQUIPMENT

American Bosch Corporation
Springfield, Mass.

MIRRORS • REFLECTORS
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**IT'S SAFER TO SEE WITH
YANKEE**

YANKEE METAL PROD., CORP.
NORWALK, CONN.



Bonney Forge & Tool Works
Allentown, Pa.

CONOCO'S MAINTENANCE

(CONTINUED FROM PAGE 224)

underneath for an extra pair of shoes.

New Mechanic Must Learn

THIS cleanup program is not new but has been in use for many years by the Continental Oil Co. and is a part of the company policy.

Problem child of this ideal garage condition, strangely enough, is the new mechanic who has been brought up in other fleet garages or a public garage. Invariably, he has to be educated to clean up after each job. Other mechanics will help him for awhile but they only allow him a little time to learn that he must keep his own area tidy.

END

(Please resume your reading on P. 46)

**NEW! BLOWOUT-PROOF
RUBBER RIVETS
SAVE TIRES**

SPEAKER Rubber Rivets seal nail holes and small breaks. A quick pull on the wire needle makes a repair that outlasts the tire. Prevent fabric rot and blowouts with Rubber Rivets. Get some from your jobber today.



J. W. SPEAKER CORP.
Milwaukee 12, Wis.

TRUCK OWNERS—ATTENTION

U. S. Gov't Surplus
BRAND-NEW MOTORS
Nationally Known Manufacturer
So Reasonably Priced It Does Not Pay
to Rebuild Your Old Engine

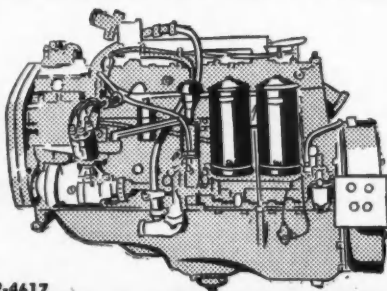
529 CU. INCH 131 H.P. **\$350.00**
4% BORE, 5 1/4 STROKE

5TH WHEELS **\$40.00**
33-IN. BRAND NEW

ACT AT ONCE

TRUCK PARTS

3712 Market St., Phila. 4, Pa. Phone Baring 2-4617



WAUKESHA Multi-Fuel ENGINES

DIESEL OIL
GASOLINE
BUTANE

ALL LIQUID OR GASEOUS FUELS

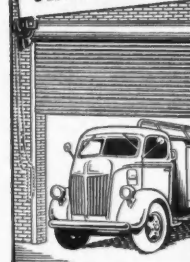
AIR-GO 100% PETROLEUM PRODUCTS

MOTOR TONIC
Reduces maintenance and operating costs... results in more engine power, more mileage per gallon, less wear and repair, freedom from carbon formations, sludge, etc. Add to any motor oil.

GAS FLUID
Aids in reducing gasoline and oil consumption, prevents corrosion, assures cleaner top motors, reduces metal wear and loss, helps eliminate sticky valves. Complete details on request.

ALLEGANY OIL CO. 6130 S. La Salle St. Chicago 21, Illinois

KINNEAR ROLLING DOORS



For truck bodies as well as buildings. Rugged, dependable. Steel slat curtain coils up quickly, out of the way. Built any size. Motor operation, if desired. Write for details.

The Kinnear Mfg. Co.
2100-20 Fields Ave.
Columbus 16, Ohio



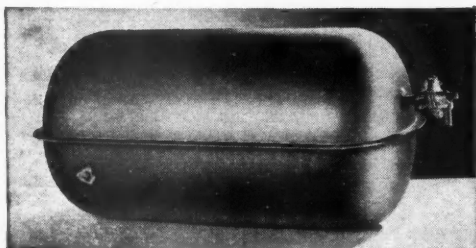
Gatke
CUSTOM-BILT
BRAKE LININGS

GATKE CORPORATION 228 N. La Salle Chicago 1, Ill.



For Trucks or Buses without Air Pressure

Motor gives more powerful action than ever before. Consistent operation under varying load is provided by the auxiliary Reservac, now available in new economy capacity.



THIS is the new heavy duty Trico AIR PRESSURE Windshield Wiper Motor.

It's powerful and fast-swinging... and it's just what you want if your trucks and buses are equipped with air brakes or other air supply, for it operates continuously under all conditions, no matter how severe.

Available either with wipers and complete linkage for new installations... or as motor alone for replacements.

Windshield Wipers

Trico Products Corporation, Buffalo 3, N. Y.

(CONTINUED FROM PAGE 102)

Perkins, manager of sales, the full operating responsibilities of the motor truck division sales department.

J. T. Sullivan, formerly Central District manager, has been transferred to the Southwest District replacing Mr. Pierson. R. S. Byers, formerly manager of the Eastern District, has been transferred to the Western District replacing Mr. Buzard. R. W.

Dibble, formerly manager of the sales operation research department, has been appointed manager of the Eastern District. E. H. Watkins, formerly assistant district manager, Eastern District, has been appointed manager of the Central District. W. A. Riggs, former Central District manager, has been transferred to the Northwest District. Karl W. Freeman remains as district manager of the Southern District.



R. S. Byers

J. T. Sullivan



W. K. Perkins

L. W. Pierson

R. M. Buzard

R. W. Dibble

Karl W. Freeman

E. H. Watkins

W. A. Riggs

**KEEP YOUR
VEHICLES MOVING
ECONOMICALLY**
with
**HALL VALVE SERVICING
EQUIPMENT**

Ask Your Jobber or write
THE HALL MFG. COMPANY
TOLEDO 7, OHIO

KEN TIRE TOOLS
REG. U. S. PAT. OFF.

LEAD THE
FIELD
ADVANCED
DESIGN
QUALITY
UNSURPASSED
SEE YOUR LOCAL
JOBBER OR
WRITE FOR
LITERATURE
**KEN TOOL
MFG. CO.**
AKRON 5, OHIO

SET No. T-300

Whiz
**MOTOR
RYTHM**
an effective
chemical tune-up
MOTOR RYTHM
Hollingshead
A PRODUCT OF
LEADER IN MAINTENANCE CHEMICALS



**FORD
TRUCKS
LAST
LONGER!**

**More Ford Trucks in Use
Today Than Any Other Make!**



*Our
Customers
are* **TOPS**

First-line Fleet Operators, Automotive Service Shops, and Automotive Jobbers who give quality service consistently buy NIEHOFF Approved Quality Products. They like their stamina and dependable performance . . . their engineering to close industrial tolerances that saves installation time . . . their rigid factory inspection that assures peak efficiency . . . their modern packaging with large easy-to-read code numbers, that protects and identifies contents . . . and the NIEHOFF system of stock control that keeps stocks at service levels. Regardless of your measuring stick of quality, you'll find NIEHOFF Products win on every count. A quality service that invites quality customers. There's a NIEHOFF Jobber near you, call him TODAY.



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